Docket No.: 29827/41149
(PATENT--FEE)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Dieter Hermeling et al.

Application No.: 10/532,279 | Confirmation No.: 8528

Filed: April 21, 2005 | Art Unit: 1794

For: Ultra-Thin Materials Made from Fibre and Superabsorbent | Examiner: Jennifer A. Steele

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in triplicate to support the Notice of Appeal in this application filed on August 25, 2008. This Appeal Brief is accompanied by the fee for filing an Appeal Brief under 37 C.F.R. §1.17(b) and a one-month extension of time under 37 C.F.R. §1.136(a). Accordingly, this Appeal Brief was timely filed and no further fees are believed due.

Any additional required fee may be charged, or any overpayment credited, to Deposit Account No. 13-2855.

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II. REAL PARTY IN INTEREST

The real party in interest in this appeal is BASF Aktiengesellschaft (BASF), Ludwigshafen, Germany, the assignee of the entire right, title, and interest to the above-identified patent application. The assignment was recorded in the United States Patent and Trademark Office ("USPTO") at Reel 17087, Frame 0178 on October 14, 2005, which constitutes the entire chain of title from the inventors to BASF.

III. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to appellants, appellants' legal representative, or the assignee which will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

IV. STATUS OF CLAIMS

A. HISTORY

This application was originally field with claims 1-21. Claims 22-24 were added to the application in a preliminary amendment.

B. CURRENT STATUS OF CLAIMS

Claims cancelled: 12, 19, and 20.

Claims withdrawn from consideration but not cancelled: None.

Claims pending: 1-11, 13-18, and 21-24.

Claims allowed: None.

Claims rejected: 1-11, 13-18, and 21-24.

C. CLAIMS ON APPEAL

The claims on appeal are claims 1-11, 13-18, and 21-24.

V. STATUS OF AMENDMENTS

Appellants filed an amendment on February 20, 2008, which was entered. A final rejection was issued on May 28, 2008. Accordingly, appellants understand that the current form of the claims is represented by Amendment "A", filed February 20, 2008, and as reproduced in the Claims Appendix below.

VI. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter relates to a material formed from a superabsorbent polymer (SAP) and fibers (claims 1-17), a laminate comprising the material (claim 18), a process for forming a compressed material (claim 21), and methods of using the material (claims 22-24). The inventors have found that the claimed material exhibits a substantially one-dimensional swelling performance upon application of water or aqueous fluids (specification, page 4, lines 5 and 6).

In particular, the presently claimed materials are ultrathin and possess properties desirable in hygiene and non-hygiene applications with respect to absorbing aqueous fluids. These desirable properties include: (a) expansion essentially in only one direction upon contact with liquid, (b) present in compressed form to minimize storage and transportation costs and to retain shape during storage, (c) a high absorbency for aqueous fluids, (d) a fast liquid acquisition without pressure and under pressure, and (e) suitable for use as a component of laminates (specification, page 1, lines 32-38). These desirable properties are achieved by an application of heat and pressure (specification, page 2, lines 30 and 31).

The recited material is formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar (independent claim1). The material exhibits an increase in thickness 60 days after compression of less than 100%, based on the thickness directly after compression (claim 1). See specification, page 1, lines 5-8 and page 4, lines 15-17.

Claims 2 and 3 recite that the material is obtained by pressing at not less than 70°C and not less than 80°C, respectively (specification, page 3, lines 5 and 6).

Claims 4 and 5 recite that the material is obtainable by pressing at not less than 5 bar and not less than 10 bar, respectively (specification, page 2, lines 34-36).

Claim 6 recites that the material expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites that

the material expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Claim 9 recites that the material has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm (specification, page 5, lines 7-16).

Claim 10 recites that the material has a ratio of teabag to retention in 0.9% NaCl solution of greater than 2 (specification, page 5, lines 18-25).

Claim 11 recites that the material has a retention in 0.9% NaCl solution of greater than 3 g/ccm (specification, page 5, lines 27-29).

Claim 13 recites that the material has an FSEV after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 1-2). Claim 14 recites that the material has an FSEV after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 4-5).

Claim 15 recites that the material has an EVUL after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 7-8). Claim 16 recites that the material has an EVUL after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 10-11).

Claim 17 recites the material has an AAP (0.7 psi) in 0.9% NaCl solution greater than 5 g/ccm (specification, page 6, lines 13-16).

Claim 18 recites a laminate comprising a material prepared from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, as recited in claim 1 (specification, page 1, lines 5-8; page 4, lines 15-17; and page 6, lines 18-20 and line 37.

Independent claim 7 recites a material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Independent claim 21 recites a process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar (specification, page 1, lines 5-8 and page 4, lines 15-17).

Claims 22-24 recite methods of using the material of claim 1 including absorbing water vapor (claim 22) and absorbing aqueous fluids (claim 23), including a body fluid (claim 24), specification page 6, lines 18-23.

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-11, 13-18, and 21-24 would have been obvious under 35 U.S.C. §103 over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No. 4,186,165 ('165).

Whether claims 22-24 would have been obvious under 35 U.S.C. §103 over WO '625 patent in view of the '165 patent and Soerens et al. U.S. Patent No. 7,115,321 ('321).

For purposes of the issues on appeal, dependent claims 2-5, 9-11, 13-18, and 22-24 are grouped and argued with independent claim 1.

Claims 6 and 8 form a second group that are argued separately.

Claim 7 forms a third group that is argued separately.

Claim 21 forms a fourth group that is argued separately.

VIII. ARGUMENT

A. INTRODUCTION

Appellants submit that the rejections issued in the final Office Action are in error, and that the present application is in condition for allowance. Appellants respectfully request the Board to review and reverse each of the rejections issued in the final Office Action.

B. PROPER BASIS FOR A §103(a) OBVIOUSNESS REJECTION

A determination that a claimed invention would have been obvious under §103(a) is a legal conclusion involving four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Secondary considerations of non-obviousness include factors such as commercial success, long-felt but unresolved needs, the failure of others, and/or *unexpected results achieved by the claimed invention. Id.* Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art which the claimed subject matter pertains, who is presumed to have all prior art references in the field of the invention available to him/her. In *re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Furthermore, obviousness must be determined as of the time the invention was made and in view of the state of the art that existed at that time. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-51 (Fed. Cir. 1988).

The Patent Office must clearly articulate facts and reasons why the claimed invention "as a whole" would have been obvious to a hypothetical person having ordinary skill in the art at least as of the claimed invention's effective filing date. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007) (citing with approval In *re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")); see also MPEP §2143 ("The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of reason(s) why the claimed invention would have been obvious.").

To reach a proper determination under 35 U.S.C. §103(a), the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicants' disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the *facts* gleaned from the prior art. MPEP §2142.

As recently articulated by the Court of Appeals for the Federal Circuit in *Ortho-McNeil Pharmaceutical Inc. v. Mylan Laboratories Inc.,* 86 USPQ 2d, 1196, 1201-2 (Fed. Cir. 2008):

> "As this court has explained, however, a flexible TSM test remains the primary guarantee against a non-statutory hindsight analysis such as occurred in this case. *In re Translogic Tech., Inc.* 504 F.3d 1249, 1257 [84 USPQ 2d 1929] (Fed. Cir. 2007) ("[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.)."

Furthermore, to establish a *prima facie* case of obviousness, the examiner must satisfy three requirements. First, as the U.S. Supreme Court recently held in *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 (2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was *an apparent reason* to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to *identify* a *reason that would have prompted a person of ordinary skill in the relevant field to combine the elements* in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost

of necessity will be combinations of what, in some sense, is already known." (emphasis added, *KSR*, *supra*). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. In *re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

Once the Patent Office properly sets forth a prima facie case of obviousness, the burden shifts to the applicants to come forward with evidence and/or argument supporting patentability. *See In re Glaug*, 283 F.3d 1335, 1338 (Fed. Cir. 2002). Rebuttal evidence is merely a showing of facts supporting the opposite conclusion." *In re Piasecki*, 745 F.2d 1468,1472 (Fed. Cir. 1984). Evidence rebutting a prima facie case of obviousness can include: (a) "evidence of unexpected results," *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348 1369 (Fed. Cir. 2007); (b) "evidence that the prior art teaches away from the claimed invention in any material respect," *In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003); and, (c) evidence of secondary considerations, such as commercial success or long-felt yet unmet needs, *WMS Gaming, Inc. v. International Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). The Patent Office must always consider such evidence supporting patentability. *See, e.g., In re Sullivan*, 498 F.3d 1345, 1352-53 (Fed. Cir. 2007) (reversing a Patent Office decision of obviousness because the Patent Office failed to consider the applicants' evidence rebutting a prima facie case of obviousness). If the Patent Office determines that such evidence is not compelling or is insufficient, then the Patent Office should specifically set forth the facts and reasoning supporting that determination. MPEP §2145 (8th Ed., Rev. 6, Sept. 2007).

C. REJECTION OF CLAIMS 1-11, 13-18, AND 21-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WHITMORE ET AL. WO 01/56625 (WO '625) IN VIEW OF ABERSON ET AL. U.S. PATENT NO. 4,186,165 ('165)

Material claims 1-11 and 13-17, laminate claim 18, method of production claim 21, and method of absorbing claims 21-24 stand rejected under 35 U.S.C. §103 based on the assertion that WO '625 and the '165 patent teach the claimed structure, which is produced by a process that substantially comprises every limitation of the disclosed process. See Office Action of May 28, 2008, page 2.

1. Disclosure of WO '625

WO '625 discloses the preparation of absorbent materials by spraying a blend containing superabsorbent polymer (SAP) particles, superabsorbing forming monomer, an initiator, and water on a fibrous web, then subjecting the web to polymerization conditions. WO '625 fails to teach a pressing temperature of not less than 60°C *or* a pressure greater than 5.5 bar.

WO '625 teaches some of the technical features of the instant invention, but *not* the claimed conditions of heating *and* pressing the superabsorbent material. WO '625 teaches "*in situ* polymerization" of a monomer solution (also containing SAP particles) sprayed onto a pre-formed, non-woven web to produce an SAP-containing non-woven web. WO '625 generally discloses compressing the SAP-containing web during manufacture of a disposable hygienic articles at page 26, lines 31-41. This disclosure contains *no* temperature and *no* pressure used in a compression step.

The sole specific disclosure in WO '625 presses at 50°C and 5.5 bar to prepare a sample for measuring the FSEV value (page 31, line 33 through page 32, line 4). The FSEV is a standard test used in the art to estimate the degree expansion of a disposable hygienic fabric. The related EVUL value estimates the rate of expansion. (WO '625, page 26, lines 4-29). In light of the WO '625 specification, the disclosed testing conditions can only be understood as typical conditions used in testing an SAP-containing web, not in the preparation of an SAP-containing web.

WO '625 states at page 31, line 33 through page 32, line 4:

> "The free swell expansion volume (FSEV) is determined by measuring the height (thickness) change, in millimeters, of a compressed web material during hydration. The FSEV of the fabrics indicated in Table 3, below, were determined as follows and are reported in Table 3, below: the fabrics were compressed in a Carver Laboratory Press Model #2697 at 7000 pounds of applied load for 48 seconds with the top platen heated to 50°C; a 5 centimeter diameter circle of the fabric was cut from the fabric and the thickness was measured before compression at approximately 4.5 millimeters and after compression at approximately 0.67 millimeters using a Fowler Ultra-digit gauge. the [sic] weight of the circle was recorded and the circle was placed in a dry sample holder; a single 20 milliliter dose of 0.9% saline was

poured on top of the circle; height measurements were taken, with the help of software designed for this purpose, over a ten-minute timeframe every 1.5 seconds. The change in the height of the fabric was measured with a linear variable differential transformer (LVDT, Schaevitz MP-1000) and the data are reported in Table 3 below in milliliters (volume)."

The present specification at page 2, lines 3-13 discusses WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056m^2; 7.000 [sic] pounds load) and a temperature of 50°C for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) The method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625."

This excerpt from the specification identifies two disadvantages associated with the absorbent material of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent materials than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public.

2. Disclosure of Aberson et al. '165 Patent

The '165 patent discloses producing a superabsorbent fabric material by pressing a mixture of wood pulp fluff and grafted superabsorbent. There is no polymerization step disclosed, or used, in the '165 patent process. A specified temperature differential is applied during pressing to generate dense layers of the fabric. In short, the '165 patent teaches an alternative and *different* superabsorbent-containing fabric from that of WO '625.

As disclosed in the '165 patent at column 3, lines 40-50:

> "According to this invention, a densified bonded layer or region is formed in an air-laid, fluffed wood pulp or batt panel containing particulate hydrocolloid material and inherent moisture by simultaneously compacting the panel with a predetermined pressure and subjecting each surface of the panel to a predetermined temperature. As a result, a substantial portion of the hydrocolloid material is fixed in the panel by mechanical entrapment in the densified layer and/or bonding to cellulosic fibers substantially throughout the batt, as will be discussed in greater detail hereinblow."

The '165 further patent states that it is the *cooler* regions of the heated fabric that are the *most* dense. In particular, at column 3, lines 53-68, the '165 patent states:

> "The heat-induced densified bonded layer is formed by raising the temperature of at least one surface of the panel to an extent sufficient to induce migration of the inherent moisture away from that surface and into the panel. *It is believed that the moisture collects at a relatively cooler region within the panel and creates a densified layer in which bonds are formed between the fibers.* The moisture contributes to the bond formation, so that *the most extensive bonding takes place in the relatively cooler region in the panel* where a relatively greater amount of moisture collects. When one of the panel surfaces is subjected under pressures to a relatively lower temperature than the opposite panel surface, the heat-induced densified bonded layer or region is formed nearer to the panel surface subjected to the relatively lower temperature (FIG. 4)." (Emphasis added)

See '165 patent, Figs. 4-6, wherein the dense layer 20 is in the coolest region of the panel (also see '165 patent, column 7, lines 30-56). The '165 patent therefore teaches heating using a temperature differential, wherein moisture is driven from a surface of higher temperature to a surface of lower temperature to increase bonding and entanglement, and accordingly, the density of the cooler surface. The '165 patent also teaches that bonding is achieved by the "inherent moisture" present in the hydrocolloid, as opposed to an *in situ* polymerization of monomers as in WO '625. The panel of the '165 patent therefore is substantially different from fibrous web of WO '625

3. Rejection of Claims 1-5, 9-11, 13-18, and 22-24 as Being Obvious over WO '625 in View of the '165 Patent

Claims 1-6, 8-11, 13-18, and 22-24 stand rejected under 35 U.S.C. §103 as being obvious over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No.

4,186,165 ('165) based on the contention that it would have been obvious to utilize a temperature and pressure disclosed in the '165 present in the process of WO '625, and thereby arrive at the presently claimed invention.

In particular, the examiner contends that the similarities between (a) a combination of WO '625 and '165 patent and (b) the present claims are sufficient to support a 35 U.S.C. §103 rejection, and that the burden is now on the appellants to demonstrate nonobvious differences between the presently claimed superabsorbent material and WO '625. It is submitted that appellants have shown nonobvious differences between the present claims and the cited art, in substantial detail, in the specification.

If mechanical entanglement and bonding of particulate superabsorbent (SAP) particles is conducted as in the '165 patent process, a portion of the SAP particles quite obviously are simply mechanically entrapped in the web and still are capable of being separated from the fibers (e.g., by shaking). WO '625 overcomes this problem of the '165 patent by an *in situ* polymerization of monomer to bond the SAP particles to the web. Accordingly, the '165 patent teaches adding an SAP to a web via entanglement and bonding using heat and pressure. A combination of WO '625 and the '165 patent provides no teaching or suggestion that *in situ* polymerization and pressing and heating, *as claimed*, can improve dimensional stability and absorption properties.

The examiner contends that it would have been obvious to utilize the process conditions of the '165 patent to prepare an SAP-containing web of WO '625. However, the combination of cited references provides no apparent reason for a person skilled in the art to make this jump in reasoning. The examiner apparently is relying upon a hindsight reasoning that the claimed combination is obvious because the two cited references are both in the field of superabsorbent polymers and each discloses one recited feature of the claims.

The Supreme Court recently identified a number of rationales that may be used to support a conclusion of obviousness, consistent with the framework set forth in its decision in *Graham v. John Deere Co.* See *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1739-40 (2007). These and other representative rationales are described at MPEP §2143 (8th Ed., Rev. 6, Sept. 2007).

The rational relied upon by the examiner apparently is as follows:

"A. Combining Prior Art Elements According to Known Methods To Yield Predictable Results

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

(1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

(2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;

(3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that the substitution of one known element for another would have yielded *predictable results* to one of ordinary skill in the art at the time of the invention. *If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious* to one of ordinary skill in the art." (*Fed. Reg., Vol. 72, No. 195*, page 57529 (October 10, 2007, emphasis added).

The present specification provides a description of WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056 m^2; 7.000 pounds load) and a temperature of 50°C. for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) the method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625." (specification, page 2, lines 3-13).

The present invention is an improvement over the SAP-containing web of WO '625. WO '625 fails to provide an incentive to apply heat and pressure as claimed, and thereby arrive at the presently claimed invention, which demonstrates new, unexpected, and unpredictable benefits over the SAP-containing web of WO '625.

In particular, WO '625 provides no apparent reason or incentive to utilize the conditions of the '165 patent in the preparation of an SAP-containing web. At most, the '165 patent discloses a preparation of the web based on bonding and mechanical entanglement of the SAP particles by heat and pressure. WO '625 teaches applying SAP particles and monomers to the web, and polymerizing the monomer to form a polymer. The polymerization can be conducted at room temperature or at an elevated temperature and the application of pressure is optional. See WO '625, page 20, lines 31-40; page 26, lines 31-41; and page 29, line 36 through page 30, line 15. In addition, appellants recognized that WO '625 fails to disclose the presently claimed process conditions, and appellants also compared the inventive SAP-containing webs to the compressed materials of WO '625, discussed more fully hereafter.

There also is no apparent reason from WO '625 to modify the temperature and pressure disclosed therein. WO '625 teaches optional heating and pressure in the preparation of a web. WO '625 also teaches pressing a web at 50°C and 5.5 bar for purposes of *testing* a web that already has been manufactured. During preparation of the web, the application of pressure is an optional step (see WO '625, page 26, lines 31-41) and heat optionally is used only to initiate monomer polymerization (WO '625, page 21, lines 31-37 and page 20, lines 3-5, for example) in the preparation of the web. In contrast, the '165 patent requires heat and pressure during manufacture of the web in order to bond and entangle SAP particles in the fibers.

WO '625 fails to teach heating except at the 50°C testing conditions. Persons skilled in the art (a) would have had no apparent reason to press at a temperature of not less than 60°C, (b) actually could consider altering the temperature and pressure disclosed in WO '625 as deterimental to the web, and (c) *would not* have predicted that applying the claimed temperature and pressure would provide the unexpectedly improved results demonstrated by the presently claimed SAP-containing web. This is particularly true after reading the '165 patent, which teaches that the *cooler* surface of the differential heat treatment is the *denser* surface. This teaching would discourage a person skilled in the art from increasing the 50°C temperature disclosed in WO '625.

As stated above, WO '625 utilizes a pressing temperature and pressure of 50°C and 5.5 bar in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant sits in a wetted diaper, then stands, i.e., the temperature and pressure of WO '625 are selected to mimic the typical use of a diaper incorporating the absorbent material. The temperature and pressure disclosed in WO '625 are not disclosed as conditions for manufacturing an absorbent sheet. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature would have an effect on absorption properties, and the '165 patent teaches that a cooler temperature provides the most dense zone of the web.

The unexpected and unpredictable results achieved by the present invention are fully set forth in the specification. The excerpt provided above from the specification at page 2, lines 3-13 identifies two disadvantages associated with the absorbent web of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent webs than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public. The present invention overcomes these disadvantages and improves the absorbent properties of an absorbent web of WO '625 that has been subjected to the test temperature and pressure disclosed therein.

In particular, page 9, line 4 through page 11, Table B of the specification compares presently claimed absorbent materials to materials produced according to WO '625. The data for FSEV and EVUL values at page 10 of the specification show that these values are unexpectedly high for the presently claimed absorbent webs compared to a web prepared

in accordance with WO '625, i.e., 50°C, 5.5 bar, 48 seconds (see specification, page 9, lines 32-33 for a definition of "Comparison").

Further, as stated at page 10, lines 2-5 of the specification with respect to FSEV values:

> "The data show that the FSEV values of the material according to the present invention (with the exception of 80 bar/150°C) are distinctly higher than those of the compressed material described in WO 01/56625 after just 30-60 seconds. The data also show that the final value is almost reached after about 300 seconds."; and

with respect to EVUL values at page 10, lines 13-16 of the specification:

> "The samples produced according to the present invention are faster than the comparative sample in water takeup under pressure of 0.5 psi. Only the sample produced at 80°C/150 bar gives the same value after 10 seconds, but here too all other measured results are better than with the comparative sample."

The comparative sample referred to was prepared in accordance with WO '625, i.e., 5 bar, 48 seconds, and 50°C (see specification, page 9, lines 32-33).

The patent specification, at page 9, lines 6-17, provides additional evidence of the unexpected results provided by a presently claimed absorbent material over an absorbent material of WO '625, stating:

> "The compressed material is dimensionally stable; that is, *the material expands insignificantly, if at all, even in the course of prolonged storage at room temperature and relative humidities of preferably less than 60%.* This dimensional stability was found with all samples which were compressed at a temperature of more than 60°C and a pressure of more than 5 bar. In the case of the comparative material produced according to WO 01/56625, in contrast, an expansion of the material took place under the abovementioned conditions:

Sample [mm]	Thickness directly after compression [mm]	Thickness after 60 days
1	0.8	2.4
2	0.7	1.8
3	0.7	1.9
4	0.8	2.3" (emphasis added)

In addition to dimensional stability and web thinness, the compressed absorbent webs of the present invention exhibit improved aqueous fluid absorption properties over a compressed web made in accordance with the test procedure of WO '625. This is clearly and simply demonstrated in the present specification at page 7, line 6 through page 8, line 31. The data compares a claimed absorbent material to an uncompressed material and material compressed using the conditions of WO '625 (specification, page 7, lines 17-18 and 33-35). The data clearly show that compressing in accordance with the present claims improves retention and teabag values, which means that the presently claimed SAP-containing web can absorb more liquid than webs of WO '625. The present absorbent material clearly , unexpectedly, and unpredictably outperformed the material compressed according to the test procedure of WO '625.

As discussed below, the above comparative data also show that the pressed materials of WO '625 do not inherently possess properties that render the present claims obvious, as contended by the examiner.

The comparative examples of the present specification further show the importance of compression at no less than 60°C. Comparative Examples 2, 3, 5, and 6 of the specification were pressed at 50°C, i.e., the same temperature as WO '625. These examples show that pressing at a high pressure, but low temperature, "does not result in significant improvement" (specification, page 15, lines 12-13, for example). These comparative examples are as close or closer to the claimed invention than the WO '625 disclosure, and further show the unexpected and unpredictable results achieved by the present invention.

The examiner has questioned the unexpected results demonstrated by the present invention and the basis of these unexpected results. With respect to present claim 1, which incorporates the features of original claim 12, the examiner's following contentions cannot be maintained:

> "As to claims [sic] 12, Whitmore does not teach dimensional stability, however WO '625 teaches that "certain web materials are subjected to compression at one or more times during the construction" and further teaches that "after the web material has been compressed, there is tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web. However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112-2112.02"

The MPEP sets forth the requirements to support an assertion of inherency. For example, the MPEP states:

> "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not *necessarily* possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433." (MPEP §2112.01, emphasis in original); and

> "'In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)...
>
> The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency." (MPEP §2112)

It is submitted that the examiner has not met the initial burden required to support that the claimed material is identical or substantially identical to the material prepared in WO '625. The present claims recite a material that exhibits substantially

improved absorption results and dimensional stability compared to the compressed material of WO '625.

An SAP-containing web of WO '625 does *not* inherently possess the properties exhibited by the present invention, as demonstrated by the unexpected dimensional stability and improved absorption properties set forth in the specification and above. Furthermore, WO '625 does *not* disclose all limitations of the claims because the reference lacks a teaching of the claimed temperature *and* pressure. The '165 patent also fails to teach dimensional stability, and nevertheless is directed to an entirely different type of web material.

Based on these substantial differences, the examiner has failed "to provide objective evidence or cogent technical reasoning" to support an assertion that the present claims necessarily flows from the teaching of WO '625, alone or in combination with the '165 patent.

In prior Office Actions, the examiner provided reasoning to support the rejection of various dependent claims. Appellants wish to address, and point out errors, in this reasoning.

With respect to the examiner's comments regarding claims 13-16, the examiner merely refers to webs disclosed in WO '625 that are untreated and treated. The "treated" webs referred to by the examiner are Examples 7-10 of WO '625. Appellants fail to see where the "treated" webs are equated to "pressed and heated". Rather, "treated" means having a polymer added to fiber by *in situ* polymerization (i.e., see WO '625, table, page 34, untreated has "0" weight of polymer). All treated webs have a specified amount of SAP applied thereto. Both treated and untreated webs of WO '625 were tested for FSEV and EVUL as set forth in WO '625 at page 31, lines 33 through page 32, line 4. Therefore, WO '625 is comparing fibers *free* of SAP (untreated) to fibers having SAP (treated). The examiner is incorrect in the comparison described in the Office Action.

Furthermore, the present specification compares a presently claimed SAP-containing web to webs of WO '625 having SAP applied thereto. Applicants have shown

unexpected results achieved by an increased temperature and modified pressure over WO '625 (see specification, page 9, line 4 through page 10, line 16).

With respect to claim 9, WO '625 may arguably disclose a web density of 0.005 to about 0.12 gm/cm, but claim 9 recites a density of "not less than 0.5 g/ccm to 1.2 g/ccm. The claimed density therefore is from 4 to 240 *times* more dense than the web of WO '625. The cited references therefore fail to recite every feature of the claimed invention, and a case of *prima facie* obviousness cannot be maintained. See Section VIII.B., above.

The examiner also states in the Office Action:

> "However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). In the following paragraph, WO'625, states that each of these factors are easily controlled and maybe optimized to achieve the desired performance (page 27, lines 19-22). With respect to Applicant's arguments, the rationale to modify the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law."

However, at page 26, line 31-41, WO '625 teaches that even compressed webs have a "tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web" (see lines 36-38). Although WO '625 reduces the relaxing phenomenon, the reference to fails to teach a reduction in the amount of relaxation as presently claimed (and as set forth in the specification and evidenced with objective, comparative data), and very importantly fails to teach or suggest *how* to overcome this tendency of fiber relaxing. Further, with respect to page 27, lines 19-22, WO '625 is not referring to compression as a factor that can be optimized but to the "swelling of the absorbent gelling particles" (page 17, line 14). The factors referred to are those that effect strikethrough and rewet, i.e., SAP concentration, degree of crosslinking, uniformity of SAP distribution, particle size distribution, and particle hydrophobicity (WO '625, page 27, lines 13-23). Such factors are not related to and are independent of the pressure and temperature utilized to manufacture the SAP-containing web.

The examiner has contended that it is not clear that the Comparative Examples were made by the process of WO '625. To the contrary, the specification is replete with references to the Comparative Examples being made by the process of WO '625. WO '625 teaches a specific compression at page 31, lines 33-43, wherein applying 5.5 bar pressure at 50°C for 48 seconds compressed an SAP-containing web from 4.5 to "approximately 0.67 mm". This clearly shows that, in the above tests, applicants utilized the pressing conditions utilized by WO '625 at page 31, lines 33-43. The process disclosed in WO '625 is a standard pressing step used in a standard test. Accordingly, the pressure/temperature conditions of WO '625 are *not* varied, and are disclosed in WO '625 and the present specification. For example, see specification, page 2, lines 3-13; page 7, lines 11-22; page 8, line 33 through page 9, line 2; and page 9, lines 4-17 (note "insignificant, if at all" expansion for a presently claimed web). Importantly, note page 9, lines 31-34 and page 7, lines 17-18 of the specification *defining* a comparative web made in accordance with WO '625. Also see page 14, lines 36 and 37; page 15, line 15 and 16; page 18, lines 32 and 33; and page 19, lines 11.

The present specification therefore clearly describes the preparation of comparative webs that were tested, and clearly demonstrates the unexpected results achieved over those comparative webs, i.e., comparative SAP-containing webs prepared at 50°C, 5.5 bar, and 48 seconds.

The examiner's statements regarding time as a factor in the present invention are incorrect. Time is not a factor. The FSEV and EVUL data referred to by the examiner show the amount of liquid *absorbed over time*. The time (48 seconds) is merely to standardize the test for comparative purposes. The time in the tables at page 10 of the specification do not correlate to the time the web is subjected to the claimed temperature and pressure.

With further respect to the time variable the present webs are used, for example, in incontinence products and diapers. Initially, the article has to be as thin as possible for discreetness, and also remain as thin as possible even if stored for long times prior to use. Upon use, typically in an adult incontinence product, the article needs to absorb as much urine as possible, but not necessarily in zero time or immediately. Even if an inventive web does not absorb urine faster than a web of WO '625 at some initial or

intermediate period of use, the inventive webs are still thinner and absorb more urine over time. In short, the time disclosed in the tables of page 10 of the specification simply is not a process variable.

Accordingly, in view of the data provided in the specification, it is submitted that an SAP-containing web, prepared as claimed, possesses nonobvious differences over the web disclosed in WO '625. In addition to the nonobvious differences between the presently claimed absorbent materials and WO '625 that are fully and clearly set forth in the specification, *by objective data*, WO '625 provides no apparent reason for a person skilled in the art to press at a temperature of not less than 60°C. WO '625, alone or taken with the '165 patent, provides no hint or suggestion, let alone any incentive, for a person skilled in the art to consider increasing the claimed pressing temperature with any reasonable expectation of providing the unexpectedly improved results demonstrated by the presently claimed absorbent webs.

WO '625 utilizes a pressing temperature of 50°C in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant has sat in a wetted diaper, then stood up. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature and pressure would have an effect on absorption properties. The '165 patent is directed to an entirely different type of web and wherein temperature and pressure are needed during web formation to bond and entangle SAP particles and into the fiber. This is not necessary in the present invention because an *in situ* polymerization bonds the SAP to the fibers and entanglement is not required. Further, the '165 patent *discourages* an increase in pressing temperature because the '165 patent teaches that the *cooler* surface of the absorbent article is the *denser* surface.

It is submitted that the examiner has failed to establish a *prima facie* case of obviousness of the present claims over the cited references because (a) there is no apparent reason to combine the elements in a fashion claimed (WO '625 discloses a single temperature and the '165 patent teaches that a cooler region provides a more dense web); (b) the modification did not have a reasonable expectation of success (the '165 patent discourages an increased temperature when a dense web is desired); and (c) the references do not teach all

the claimed limitations (the references alone or in combination fail to teach the claimed temperature *and* pressure *and* dimensional stability). In addition, the present invention has demonstrated unpredictable and unexpected results. Therefore, the rational supporting present rejection cannot be used (see pages 18 and 19 above).

Furthermore, the examiner has failed to consider appellants' evidence rebutting a *prima facie* case of obviousness. The examiner relies upon the webs of WO '625 inherently possessing the properties of a claimed web. This examiner's inherency argument has been addressed above, and it fails because of the unexpected and unpredictable improvements provided by the claimed materials. Although these differences were pointed out in a previous response, they were overlooked and not considered. Irregardless, if the examiner considers the data in the specification as insufficient, it is *incumbent* in the examiner to specifically set forth facts and reasoning supporting that determination. (MPEP §2145). The examiner has failed to provide such facts and reasoning.

For all the reasons set forth above, appellants submit that claims 1-5, 9-11, 13-18 and 22-24 are patentable over a combination of WO '625 and the '165 patent under 35 U.S.C. §103, and that the rejection should be reversed.

4. Rejection of Claims 6 and 8 as Being Obvious over WO '625 in View of the '165 Patent

Claims 6 and 8 also stand rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3. Claim 6 recites the material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites the material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water. WO '625 and the '165 patent, each alone or in combination, fail to teach or suggest the features recited in claims 6 and 8.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 1. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials further render claims 6 and 8 nonobvious over a combination of WO '625 and the '165 patent. The

combination of references also fail to teach every claimed feature of claims 6 and 8 as required to establish a *prima facie* case of obviousness.

With respect to the directional expansion values recited in claims 6 and 8, attention is particularly directed to the specification at page 12, lines 7-9, stating in reference to the claimed absorbent materials:

> "The 30x50 mm samples were observed to swell essentially in the z-direction. A swelling of about 10% was measured in the x- or y-direction, the third dimension remained unchanged (the web is more easily extendable in one axis than in the other dimension)."

Also see the data at page 8, lines 4 and 13, and in the Expansion Factors at pages 12-19, of the specification, wherein the inventive absorbent materials show a substantial expansion factor of 11.2 to 32.5 in the z-direction (Examples 1-11) and Comparative Examples 2, 3, 5, and 6 prepared very similarly to the pressed web WO '625 did *not* expand in the z direction, i.e., expansion factor of 1.1 to 4.6[1]. The SAP-containing webs of WO '625 therefore do not inherently exhibit the features recited in the claims. To the contrary, SAP-containing webs of claims 6 and 8 demonstrate unexpected and unpredictable benefits over the pressed webs of WO '625.

In addition, the references, each alone or in combination, fail to teach or suggest all of the claimed features of claims 6 or 8, and accordingly a case of *prima facie* obviousness cannot be established. See Section VIII.B., above.

Appellants therefore submit that claims 6 and 8 are patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

5. Rejection of Claim 7 as Being Obvious over WO '625 in View of the '165 Patent

Claim 7 also stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3.

[1] WO '625 discloses pressing 50°C and 5.5 bar. Comparative Examples 2, 3, 5, and 6 were pressed at 50°C and either 6 bar or 80 bar. These comparative examples are closer to the claimed invention than WO '625 because of a higher pressing pressure.

Claim 7 recites "[A] material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water." Claim 7 neither recites nor relies upon process parameters, such as pressing temperature and pressure. Therefore, the process parameters recited in WO '625, i.e., 50°C and 5.5 bar, and in the '165 patent, are not relevant.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 7. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials render claim 7 nonobvious over a combination of WO '625 and the '165 patent. The combination of references also fail to teach every claimed feature of claim 7, as required to establish a *prima facie* case of obviousness. See Section VIII.B., above.

Appellants therefore submit that claim 7 is patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

6. Rejection of Claim 21 as Being Obvious over WO '625 in View of the '165 Patent

Claim 21 stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the reasons set forth above in Section VIII.C.3. Claim 21 recites a "process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar."

Process claim 21 recites a particular temperature and pressure that differ from the pressing temperature and pressure disclosed in WO '625. As set forth in Section VIII.C.3., above, an absorbent material made by the process of WO '625 does not inherently possess the features of a compressed material made by the method recited in claim 21. Furthermore, the unexpected and unpredictable results provided by a material made in accordance with process claim 21 render claim 21 nonobvious over a combination of WO '625 and the '165 patent.

With further respect to claim 21, the examiner has stated that WO '625 teaches "50°C which is about 60°C" and 5.5 bar "which can be about 3 bar". This statement lacks support. While the term "about" avoids a strict numerical interpretation, the term cannot be interpreted as broadly as suggested by the examiner.

The term "about" should be interpreted in context, in particular with reference to the intrinsic evidence for the context in which it is used. *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995). When the intrinsic evidence points to the criticality of a particular parameter, the term "about" is interpreted narrowly. *See Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.* 476 F.3d 1321, 1328-1329 (Fed. Cir. 2007) (narrowly construing an "about 1:5" claim limitation in view of intrinsic evidence). A claim range is critical, for example, when the specification indicates that it is important to select a value in the particular range and further indicates that such a selection is related to achieving the objects of the invention. *See Conopco, Inc., v. May Dept. Stores Co.,* 46 F.3d 1556, 1561 (Fed. Cir. 1994) (finding a composition's ratio of isoparaffin to alkyl phosphate salt critical). The presence of other disclosed ranges guides a narrow interpretation of the term "about," in particular interpretation should not render the distinction between the other disclosed ranges meaningless. *See Ortho*, 476 F.3d at 1327 (narrowly construing an "about 1:5" claim limitation "because to find otherwise would allow the scope of the more specifically identified ratio, 1:5, to encompass a range of ratios that could potentially render meaningless another claim's limitation").

Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 1217-18 (Fed. Cir. 1991) affirmed that the use of the word "about" in a claim is appropriate where the claim contains a range of components with no absolute boundaries and that the use of the word "about" in a claim is only limited to the extent that prior art exists, that is, prior art which would limit broad interpretation of the claim. The Patent Office, in MPEP §2173.05 (b), further characterizes the *Amgen* case as follows:

> "However, the court held that claims reciting "at least about" were invalid for indefiniteness where there was close prior art and there was *nothing in the specification, prosecution history, or the prior art* to provide any indication as to what range of specific activity is covered by the term "about." *Amgen, Inc. v. Chugai Pharmaceutical Co.,* 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991)." (Emphasis added)

It also must be kept in mind that WO '625 discloses *only one* temperature (50°C) and *only one* pressure (5.5 bar). In addition, *Comparative* Examples 2, 3, 5, and 6 of the present specification press at 50°C and greater than 3 bar, thereby clearly showing that 50°C is *not* encompassed by "about 60°C".

In view of the fact that WO '625 solely teaches 50°C, and in view of the present disclosure, wherein 50°C is a comparative temperature, it cannot be contended with any degree of reason that a claimed temperature of about 60°C can be extended to include a temperature of 50°C. The broad interpretation of "about" suggested by the examiner renders the disclosed temperature meaningless because to include 50°C makes the temperature range significantly wider than the about 60°C temperature disclosed in the specification. Thus, the suggestion that "about 60°C" encompasses 50°C is erroneous.

Nowhere in the WO '625 disclosure is it taught or suggested that the temperature can be increased by 20%, or the pressure reduced by close to 50%. WO '625 provides a single temperature and pressure, neither one of which can be changed because then the test based on this temperature and pressure would be worthless. The references provide no incentive or apparent reason for a person skilled in the art to raise the temperature to "about 60°C" (or higher) *and* utilize a pressure of "about 3 bar" (or greater), which is a higher temperature and lower pressure disclosed in to WO '625. In particular, if WO '625 teaches a high pressure improves performance, why *decrease* the pressure disclosed in WO '625.

The '165 patent fails to cure the deficiencies of WO '625. The '165 patent utilizes pressing conditions to form an entirely different type of web, and specifically discloses that *increasing* pressing temperature *decreases* density. Persons skilled in the art therefore would not consider pressing at an increased temperature because a less dense absorbent material, which the art wishes to avoid, would be expected.

Appellants therefore submit that claim 21 is patentable under 35 U.S.C. §103 over a combination of WO '625 and the '165 patent for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

7. Response to Examiner's Answers to Applicant's Arguments

At pages 3-5 of the Final Office Action of May 28, 2008, the examiner responds to arguments made in Amendment "A", filed February 20, 2008. Appellants now address the examiner's answers.

> (a) "The fact that the WO '625 discloses a pressing pressure and temperature for testing the web indicates an understanding that the pressure and temperature of compression can affect an absorbent web with a superabsorbent polymer."

The examiner misstates the reason why an *already prepared* web is pressed at 50°C and 5.5 bar. The webs are pressed in the test set forth in WO '625 to simulate a wetted diaper on a seated child after the child stands. The test demonstrates how the web is expected to react under actual conditions of use. The test in no way "indicates an understanding that the pressure and temperature of compression can affect a superabsorbent web." All webs are tested by the same protocol in order to obtain meaningful data for a comparison between different webs. The examiner's basis for the above contention is simply erroneous.

> (b) "Whereas WO'625 has the structure and materials of the claimed invention it would be reasonable to presume that WO'625 inherently has the properties of WO'625."

Although it may be reasonable to presume that the claimed absorbent material made by the claimed method inherently has the properties of an absorbent material of WO '625 (which appellants believe the examiner is attempting to state), appellants have shown with *objective data* that a claimed absorbent web has different and improved properties over a web that is pressed and heated as set forth in the procedure of WO '625. These unexpected improvements are fully set forth in Section VIII.C.3. above. A web of WO '625 therefore does not inherently have the properties of a presently claimed material.

> (c) "However as the claims are also drawn to the process of making a material formed of a superabsorbent polymer and fibers, Aberson provides a finding that is known in the art to optimize the pressure and temperature of a heating and compression process."

First, the '165 patent is directed to an entirely different type of absorbent web. The '165 patent applies heat and pressure to bond and entangle superabsorbent polymer

particles with fibers during manufacture of the web. In contrast, the present claims are directed to an absorbent web wherein monomers are polymerized in the presence of the fibers to form a superabsorbent polymer bound to the fiber. The present invention does not rely upon entanglement and heat induced bonding. In accordance with present invention, heat and pressure are not required for bonding and/or entanglement, and are optional during initial preparation of the web. A present material is heated and pressed after the *in situ* polymerization to compress the material. Accordingly, the structure of the '165 patent web and the present absorbent material are entirely different. The '165 patent discloses preferred temperatures and pressures for forming an entangled-type web. Such a temperature and pressure cannot *a priori* be considered optimum for a type of absorbent material recited in the present claims.

More importantly, the '165 patent teaches pressing using a differential temperature such that the coolest region of the pressed web is the most dense. If two plates are used, the most dense zone of the web is the center which is the coolest zone of the web. See '165 patent, Figs. 3-5, wherein zone 20 is the coolest *and* most dense zone. This is contrary to the present invention which requires elevated heat and pressure to provide a dense web. The '165 patent therefore discourages a person skilled in the art to alter the test conditions of WO '625 and increase the pressing temperature.

> (d) "Therefore Aberson and WO'165 [sic] have the same structure, produced of the same materials and produced by the same process."

As discussed above in (c), the absorbent materials of the '165 patent and WO '625 do *not* have the same structure and are *not* produced by the same process. The '165 patent absorbent web is a bonded/entanglement type web, wherein the fibers and superabsorbent polymer are mixed, and pressed and heated. In the present process and WO '625, the superabsorbent polymer is prepared *in situ* in the presence of the fibers, then pressed and heated. Accordingly, the articles of the '165 patent and WO '625 are different and are prepared by different processes.

D. REJECTION OF CLAIMS 22-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WO '625 IN VIEW OF THE '165 PATENT AND SOERENS ET AL. U.S. PATENT NO. 7,115,321 ('321)

Method claims 22-24 also stand rejected under 35 U.S.C. §103 for the reasons set forth above in Section VIII.C. with respect to WO '625 and the '165 patent and because the '321 patent teaches the absorption of water vapor by an absorbent material.

First, the examiner summarily maintained a rejection of claims 22-24 because "the claims have not been amended and therefore the previous Office Action Rejection of 5/17/2007 is maintained" (Office Action, October 19, 2007, page 6). The examiner failed to consider the amendment to claim 1, filed August 17, 2007. Because claims 22-24 depend from claim 1, these claims were amended and the amended claims were not considered by the examiner.

Second, claims 23 and 24 are not directed to absorbing water vapor, but to absorbing an aqueous fluid.

Third, the '321 patent is directed to an absorbent binder system that is applied to a substrate, and the system crosslinks on the substrate to form a laminate. The '321 patent is not remotely directed to an absorbent material comprising fibers and a superabsorbent polymer.

Fourth, the patentability of claim 1, from which claims 22-24 depend, over a combination of WO '625 and the '165 patent has been fully addressed above. The '321 patent fails to overcome the deficiencies of WO '625 and the '165 patent. As stated above, the '321 patent is directed to an absorbent binding coating and fails to teach or suggest that a compressed material prepared according to claim 1 can be used as the absorbent binding coating. See the Example of the '321 patent at columns 16 and 17. The '321 patent also does not address the dimensional stability overcome by the presently claimed absorbent material.

It is submitted that, in view of the novelty and nonobviousness of the absorbent material of claim 1, uses of the novel and nonobvious material also are novel and nonobvious. Appellants therefore submit that the rejection of claims 22-24 under 35 U.S.C. §103 over a combination of WO '625, the '165 patent, and the '321 patent should be reversed.

IX. CONCLUSION

In view of the foregoing remarks, appellants respectfully request that the Board reverse the final rejection of claims 1-11, 13-18, and 21-24, and that all pending claims should be allowed.

Dated: November 24, 2008

Respectfully submitted,

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CLAIMS APPENDIX

Claims on Appeal in Application Serial No. 10/532,279

1. (Previously presented) A material formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, wherein an increase in thickness 60 days after compression is less than 100% based on the thickness directly after compression.

2. (Previously presented) The material of claim 1 obtainable by pressing at not less than 70°C.

3. (Previously presented) The material of claim 1 obtainable by pressing at not less than 80°C.

4. (Previously presented) The material of claim 1 obtainable by pressing at not less than 5 bar.

5. (Previously presented) The material of claim 1 obtainable by pressing at not less than 10 bar.

6. (Previously presented) The material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

7. (Previously presented) A material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

8. (Previously presented) The material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water.

9. (Previously presented) The material of claim 1 that has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm.

10. (Previously presented) The material of claim 1 wherein a ratio of teabag to retention in 0.9% NaCl solution is greater than 2.

11. (Previously presented) The material of claim 1 wherein retention in 0.9% NaCl solution is greater than 3 g/ccm.

12. (Cancelled)

13. (Previously presented) The material of claim 1 wherein an FSEV after 60 seconds is at least double that of an uncompressed material.

14. (Previously presented) The material of claim 1 wherein an FSEV after 2 minutes is at least 60% higher than that of an uncompressed material.

15. (Previously presented) The material of claim 1 wherein an EVUL after 60 seconds is at least double that of an uncompressed material.

16. (Previously presented) The material of claim 1 wherein an EVUL after 2 minutes is at least 60% higher than that of an uncompressed material.

17. (Previously presented) The material of claim 1 wherein an AAP (0.7 psi) in 0.9% NaCl solution is greater than 5 g/ccm.

18. (Previously presented) A laminate comprising a material of claim 1.

19. (Canceled)

20. (Canceled)

21. (Previously presented) A process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar.

22. (Previously presented) A method of absorbing water vapor comprising contacting the water vapor with a material of claim 1.

23. (Previously presented) A method of absorbing an aqueous fluid comprising contacting the aqueous fluid with a material of claim 1.

24. (Previously presented) The method of claim 23 wherein the aqueous fluid comprises a body fluid.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.

Docket No.: 29827/41149
(PATENT--FEE)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Dieter Hermeling et al.

Application No.: 10/532,279 | Confirmation No.: 8528

Filed: April 21, 2005 | Art Unit: 1794

For: Ultra-Thin Materials Made from Fibre and Superabsorbent | Examiner: Jennifer A. Steele

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in triplicate to support the Notice of Appeal in this application filed on August 25, 2008. This Appeal Brief is accompanied by the fee for filing an Appeal Brief under 37 C.F.R. §1.17(b) and a one-month extension of time under 37 C.F.R. §1.136(a). Accordingly, this Appeal Brief was timely filed and no further fees are believed due.

Any additional required fee may be charged, or any overpayment credited, to Deposit Account No. 13-2855.

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II. REAL PARTY IN INTEREST

The real party in interest in this appeal is BASF Aktiengesellschaft (BASF), Ludwigshafen, Germany, the assignee of the entire right, title, and interest to the above-identified patent application. The assignment was recorded in the United States Patent and Trademark Office ("USPTO") at Reel 17087, Frame 0178 on October 14, 2005, which constitutes the entire chain of title from the inventors to BASF.

III. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to appellants, appellants' legal representative, or the assignee which will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

IV. STATUS OF CLAIMS

A. HISTORY

This application was originally field with claims 1-21. Claims 22-24 were added to the application in a preliminary amendment.

B. CURRENT STATUS OF CLAIMS

Claims cancelled: 12, 19, and 20.

Claims withdrawn from consideration but not cancelled: None.

Claims pending: 1-11, 13-18, and 21-24.

Claims allowed: None.

Claims rejected: 1-11, 13-18, and 21-24.

C. CLAIMS ON APPEAL

The claims on appeal are claims 1-11, 13-18, and 21-24.

V. STATUS OF AMENDMENTS

Appellants filed an amendment on February 20, 2008, which was entered. A final rejection was issued on May 28, 2008. Accordingly, appellants understand that the current form of the claims is represented by Amendment "A", filed February 20, 2008, and as reproduced in the Claims Appendix below.

VI. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter relates to a material formed from a superabsorbent polymer (SAP) and fibers (claims 1-17), a laminate comprising the material (claim 18), a process for forming a compressed material (claim 21), and methods of using the material (claims 22-24). The inventors have found that the claimed material exhibits a substantially one-dimensional swelling performance upon application of water or aqueous fluids (specification, page 4, lines 5 and 6).

In particular, the presently claimed materials are ultrathin and possess properties desirable in hygiene and non-hygiene applications with respect to absorbing aqueous fluids. These desirable properties include: (a) expansion essentially in only one direction upon contact with liquid, (b) present in compressed form to minimize storage and transportation costs and to retain shape during storage, (c) a high absorbency for aqueous fluids, (d) a fast liquid acquisition without pressure and under pressure, and (e) suitable for use as a component of laminates (specification, page 1, lines 32-38). These desirable properties are achieved by an application of heat and pressure (specification, page 2, lines 30 and 31).

The recited material is formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar (independent claim1). The material exhibits an increase in thickness 60 days after compression of less than 100%, based on the thickness directly after compression (claim 1). See specification, page 1, lines 5-8 and page 4, lines 15-17.

Claims 2 and 3 recite that the material is obtained by pressing at not less than 70°C and not less than 80°C, respectively (specification, page 3, lines 5 and 6).

Claims 4 and 5 recite that the material is obtainable by pressing at not less than 5 bar and not less than 10 bar, respectively (specification, page 2, lines 34-36).

Claim 6 recites that the material expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites that

the material expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Claim 9 recites that the material has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm (specification, page 5, lines 7-16).

Claim 10 recites that the material has a ratio of teabag to retention in 0.9% NaCl solution of greater than 2 (specification, page 5, lines 18-25).

Claim 11 recites that the material has a retention in 0.9% NaCl solution of greater than 3 g/ccm (specification, page 5, lines 27-29).

Claim 13 recites that the material has an FSEV after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 1-2). Claim 14 recites that the material has an FSEV after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 4-5).

Claim 15 recites that the material has an EVUL after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 7-8). Claim 16 recites that the material has an EVUL after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 10-11).

Claim 17 recites the material has an AAP (0.7 psi) in 0.9% NaCl solution greater than 5 g/ccm (specification, page 6, lines 13-16).

Claim 18 recites a laminate comprising a material prepared from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, as recited in claim 1 (specification, page 1, lines 5-8; page 4, lines 15-17; and page 6, lines 18-20 and line 37.

Independent claim 7 recites a material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Independent claim 21 recites a process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar (specification, page 1, lines 5-8 and page 4, lines 15-17).

Claims 22-24 recite methods of using the material of claim 1 including absorbing water vapor (claim 22) and absorbing aqueous fluids (claim 23), including a body fluid (claim 24), specification page 6, lines 18-23.

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-11, 13-18, and 21-24 would have been obvious under 35 U.S.C. §103 over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No. 4,186,165 ('165).

Whether claims 22-24 would have been obvious under 35 U.S.C. §103 over WO '625 patent in view of the '165 patent and Soerens et al. U.S. Patent No. 7,115,321 ('321).

For purposes of the issues on appeal, dependent claims 2-5, 9-11, 13-18, and 22-24 are grouped and argued with independent claim 1.

Claims 6 and 8 form a second group that are argued separately.

Claim 7 forms a third group that is argued separately.

Claim 21 forms a fourth group that is argued separately.

VIII. ARGUMENT

A. INTRODUCTION

Appellants submit that the rejections issued in the final Office Action are in error, and that the present application is in condition for allowance. Appellants respectfully request the Board to review and reverse each of the rejections issued in the final Office Action.

B. PROPER BASIS FOR A §103(a) OBVIOUSNESS REJECTION

A determination that a claimed invention would have been obvious under §103(a) is a legal conclusion involving four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Secondary considerations of non-obviousness include factors such as commercial success, long-felt but unresolved needs, the failure of others, and/or *unexpected results achieved by the claimed invention. Id.* Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art which the claimed subject matter pertains, who is presumed to have all prior art references in the field of the invention available to him/her. In *re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Furthermore, obviousness must be determined as of the time the invention was made and in view of the state of the art that existed at that time. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-51 (Fed. Cir. 1988).

The Patent Office must clearly articulate facts and reasons why the claimed invention "as a whole" would have been obvious to a hypothetical person having ordinary skill in the art at least as of the claimed invention's effective filing date. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007) (citing with approval In *re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")); see also MPEP §2143 ("The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of reason(s) why the claimed invention would have been obvious.").

To reach a proper determination under 35 U.S.C. §103(a), the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicants' disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the *facts* gleaned from the prior art. MPEP §2142.

As recently articulated by the Court of Appeals for the Federal Circuit in *Ortho-McNeil Pharmaceutical Inc. v. Mylan Laboratories Inc.*, 86 USPQ 2d, 1196, 1201-2 (Fed. Cir. 2008):

> "As this court has explained, however, a flexible TSM test remains the primary guarantee against a non-statutory hindsight analysis such as occurred in this case. *In re Translogic Tech., Inc.* 504 F.3d 1249, 1257 [84 USPQ 2d 1929] (Fed. Cir. 2007) ("[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.)."

Furthermore, to establish a *prima facie* case of obviousness, the examiner must satisfy three requirements. First, as the U.S. Supreme Court recently held in *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 (2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was *an apparent reason* to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to *identify* a *reason that would have prompted a person of ordinary skill in the relevant field to combine the elements* in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost

of necessity will be combinations of what, in some sense, is already known." (emphasis added, *KSR*, *supra*). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. In *re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

Once the Patent Office properly sets forth a prima facie case of obviousness, the burden shifts to the applicants to come forward with evidence and/or argument supporting patentability. *See In re Glaug*, 283 F.3d 1335, 1338 (Fed. Cir. 2002). Rebuttal evidence is merely a showing of facts supporting the opposite conclusion." *In re Piasecki*, 745 F.2d 1468,1472 (Fed. Cir. 1984). Evidence rebutting a prima facie case of obviousness can include: (a) "evidence of unexpected results," *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348 1369 (Fed. Cir. 2007); (b) "evidence that the prior art teaches away from the claimed invention in any material respect," *In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003); and, (c) evidence of secondary considerations, such as commercial success or long-felt yet unmet needs, *WMS Gaming, Inc. v. International Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). The Patent Office must always consider such evidence supporting patentability. *See, e.g., In re Sullivan*, 498 F.3d 1345, 1352-53 (Fed. Cir. 2007) (reversing a Patent Office decision of obviousness because the Patent Office failed to consider the applicants' evidence rebutting a prima facie case of obviousness). If the Patent Office determines that such evidence is not compelling or is insufficient, then the Patent Office should specifically set forth the facts and reasoning supporting that determination. MPEP §2145 (8th Ed., Rev. 6, Sept. 2007).

C. REJECTION OF CLAIMS 1-11, 13-18, AND 21-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WHITMORE ET AL. WO 01/56625 (WO '625) IN VIEW OF ABERSON ET AL. U.S. PATENT NO. 4,186,165 ('165)

Material claims 1-11 and 13-17, laminate claim 18, method of production claim 21, and method of absorbing claims 21-24 stand rejected under 35 U.S.C. §103 based on the assertion that WO '625 and the '165 patent teach the claimed structure, which is produced by a process that substantially comprises every limitation of the disclosed process. See Office Action of May 28, 2008, page 2.

1. Disclosure of WO '625

WO '625 discloses the preparation of absorbent materials by spraying a blend containing superabsorbent polymer (SAP) particles, superabsorbing forming monomer, an initiator, and water on a fibrous web, then subjecting the web to polymerization conditions. WO '625 fails to teach a pressing temperature of not less than 60°C *or* a pressure greater than 5.5 bar.

WO '625 teaches some of the technical features of the instant invention, but *not* the claimed conditions of heating *and* pressing the superabsorbent material. WO '625 teaches "*in situ* polymerization" of a monomer solution (also containing SAP particles) sprayed onto a pre-formed, non-woven web to produce an SAP-containing non-woven web. WO '625 generally discloses compressing the SAP-containing web during manufacture of a disposable hygienic articles at page 26, lines 31-41. This disclosure contains *no* temperature and *no* pressure used in a compression step.

The sole specific disclosure in WO '625 presses at 50°C and 5.5 bar to prepare a sample for measuring the FSEV value (page 31, line 33 through page 32, line 4). The FSEV is a standard test used in the art to estimate the degree expansion of a disposable hygienic fabric. The related EVUL value estimates the rate of expansion. (WO '625, page 26, lines 4-29). In light of the WO '625 specification, the disclosed testing conditions can only be understood as typical conditions used in testing an SAP-containing web, not in the preparation of an SAP-containing web.

WO '625 states at page 31, line 33 through page 32, line 4:

> "The free swell expansion volume (FSEV) is determined by measuring the height (thickness) change, in millimeters, of a compressed web material during hydration. The FSEV of the fabrics indicated in Table 3, below, were determined as follows and are reported in Table 3, below: the fabrics were compressed in a Carver Laboratory Press Model #2697 at 7000 pounds of applied load for 48 seconds with the top platen heated to 50°C; a 5 centimeter diameter circle of the fabric was cut from the fabric and the thickness was measured before compression at approximately 4.5 millimeters and after compression at approximately 0.67 millimeters using a Fowler Ultra-digit gauge. the [sic] weight of the circle was recorded and the circle was placed in a dry sample holder; a single 20 milliliter dose of 0.9% saline was

poured on top of the circle; height measurements were taken, with the help of software designed for this purpose, over a ten-minute timeframe every 1.5 seconds. The change in the height of the fabric was measured with a linear variable differential transformer (LVDT, Schaevitz MP-1000) and the data are reported in Table 3 below in milliliters (volume)."

The present specification at page 2, lines 3-13 discusses WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056m^2; 7.000 [sic] pounds load) and a temperature of 50°C for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) The method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625."

This excerpt from the specification identifies two disadvantages associated with the absorbent material of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent materials than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public.

2. Disclosure of Aberson et al. '165 Patent

The '165 patent discloses producing a superabsorbent fabric material by pressing a mixture of wood pulp fluff and grafted superabsorbent. There is no polymerization step disclosed, or used, in the '165 patent process. A specified temperature differential is applied during pressing to generate dense layers of the fabric. In short, the '165 patent teaches an alternative and *different* superabsorbent-containing fabric from that of WO '625.

As disclosed in the '165 patent at column 3, lines 40-50:

> "According to this invention, a densified bonded layer or region is formed in an air-laid, fluffed wood pulp or batt panel containing particulate hydrocolloid material and inherent moisture by simultaneously compacting the panel with a predetermined pressure and subjecting each surface of the panel to a predetermined temperature. As a result, a substantial portion of the hydrocolloid material is fixed in the panel by mechanical entrapment in the densified layer and/or bonding to cellulosic fibers substantially throughout the batt, as will be discussed in greater detail hereinblow."

The '165 further patent states that it is the *cooler* regions of the heated fabric that are the *most* dense. In particular, at column 3, lines 53-68, the '165 patent states:

> "The heat-induced densified bonded layer is formed by raising the temperature of at least one surface of the panel to an extent sufficient to induce migration of the inherent moisture away from that surface and into the panel. *It is believed that the moisture collects at a relatively cooler region within the panel and creates a densified layer in which bonds are formed between the fibers.* The moisture contributes to the bond formation, so that *the most extensive bonding takes place in the relatively cooler region in the panel* where a relatively greater amount of moisture collects. When one of the panel surfaces is subjected under pressures to a relatively lower temperature than the opposite panel surface, the heat-induced densified bonded layer or region is formed nearer to the panel surface subjected to the relatively lower temperature (FIG. 4)." (Emphasis added)

See '165 patent, Figs. 4-6, wherein the dense layer 20 is in the coolest region of the panel (also see '165 patent, column 7, lines 30-56). The '165 patent therefore teaches heating using a temperature differential, wherein moisture is driven from a surface of higher temperature to a surface of lower temperature to increase bonding and entanglement, and accordingly, the density of the cooler surface. The '165 patent also teaches that bonding is achieved by the "inherent moisture" present in the hydrocolloid, as opposed to an *in situ* polymerization of monomers as in WO '625. The panel of the '165 patent therefore is substantially different from fibrous web of WO '625

3. Rejection of Claims 1-5, 9-11, 13-18, and 22-24 as Being Obvious over WO '625 in View of the '165 Patent

Claims 1-6, 8-11, 13-18, and 22-24 stand rejected under 35 U.S.C. §103 as being obvious over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No.

4,186,165 ('165) based on the contention that it would have been obvious to utilize a temperature and pressure disclosed in the '165 present in the process of WO '625, and thereby arrive at the presently claimed invention.

In particular, the examiner contends that the similarities between (a) a combination of WO '625 and '165 patent and (b) the present claims are sufficient to support a 35 U.S.C. §103 rejection, and that the burden is now on the appellants to demonstrate nonobvious differences between the presently claimed superabsorbent material and WO '625. It is submitted that appellants have shown nonobvious differences between the present claims and the cited art, in substantial detail, in the specification.

If mechanical entanglement and bonding of particulate superabsorbent (SAP) particles is conducted as in the '165 patent process, a portion of the SAP particles quite obviously are simply mechanically entrapped in the web and still are capable of being separated from the fibers (e.g., by shaking). WO '625 overcomes this problem of the '165 patent by an *in situ* polymerization of monomer to bond the SAP particles to the web. Accordingly, the '165 patent teaches adding an SAP to a web via entanglement and bonding using heat and pressure. A combination of WO '625 and the '165 patent provides no teaching or suggestion that *in situ* polymerization and pressing and heating, *as claimed*, can improve dimensional stability and absorption properties.

The examiner contends that it would have been obvious to utilize the process conditions of the '165 patent to prepare an SAP-containing web of WO '625. However, the combination of cited references provides no apparent reason for a person skilled in the art to make this jump in reasoning. The examiner apparently is relying upon a hindsight reasoning that the claimed combination is obvious because the two cited references are both in the field of superabsorbent polymers and each discloses one recited feature of the claims.

The Supreme Court recently identified a number of rationales that may be used to support a conclusion of obviousness, consistent with the framework set forth in its decision in *Graham v. John Deere Co.* See *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1739-40 (2007). These and other representative rationales are described at MPEP §2143 (8th Ed., Rev. 6, Sept. 2007).

The rational relied upon by the examiner apparently is as follows:

"A. Combining Prior Art Elements According to Known Methods To Yield Predictable Results

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

(1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

(2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;

(3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that the substitution of one known element for another would have yielded *predictable results* to one of ordinary skill in the art at the time of the invention. *If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious* to one of ordinary skill in the art." (*Fed. Reg., Vol. 72, No. 195*, page 57529 (October 10, 2007, emphasis added).

The present specification provides a description of WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056 m^2; 7.000 pounds load) and a temperature of 50°C. for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) the method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625." (specification, page 2, lines 3-13).

The present invention is an improvement over the SAP-containing web of WO '625. WO '625 fails to provide an incentive to apply heat and pressure as claimed, and thereby arrive at the presently claimed invention, which demonstrates new, unexpected, and unpredictable benefits over the SAP-containing web of WO '625.

In particular, WO '625 provides no apparent reason or incentive to utilize the conditions of the '165 patent in the preparation of an SAP-containing web. At most, the '165 patent discloses a preparation of the web based on bonding and mechanical entanglement of the SAP particles by heat and pressure. WO '625 teaches applying SAP particles and monomers to the web, and polymerizing the monomer to form a polymer. The polymerization can be conducted at room temperature or at an elevated temperature and the application of pressure is optional. See WO '625, page 20, lines 31-40; page 26, lines 31-41; and page 29, line 36 through page 30, line 15. In addition, appellants recognized that WO '625 fails to disclose the presently claimed process conditions, and appellants also compared the inventive SAP-containing webs to the compressed materials of WO '625, discussed more fully hereafter.

There also is no apparent reason from WO '625 to modify the temperature and pressure disclosed therein. WO '625 teaches optional heating and pressure in the preparation of a web. WO '625 also teaches pressing a web at 50°C and 5.5 bar for purposes of *testing* a web that already has been manufactured. During preparation of the web, the application of pressure is an optional step (see WO '625, page 26, lines 31-41) and heat optionally is used only to initiate monomer polymerization (WO '625, page 21, lines 31-37 and page 20, lines 3-5, for example) in the preparation of the web. In contrast, the '165 patent requires heat and pressure during manufacture of the web in order to bond and entangle SAP particles in the fibers.

WO '625 fails to teach heating except at the 50°C testing conditions. Persons skilled in the art (a) would have had no apparent reason to press at a temperature of not less than 60°C, (b) actually could consider altering the temperature and pressure disclosed in WO '625 as deterimental to the web, and (c) *would not* have predicted that applying the claimed temperature and pressure would provide the unexpectedly improved results demonstrated by the presently claimed SAP-containing web. This is particularly true after reading the '165 patent, which teaches that the *cooler* surface of the differential heat treatment is the *denser* surface. This teaching would discourage a person skilled in the art from increasing the 50°C temperature disclosed in WO '625.

As stated above, WO '625 utilizes a pressing temperature and pressure of 50°C and 5.5 bar in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant sits in a wetted diaper, then stands, i.e., the temperature and pressure of WO '625 are selected to mimic the typical use of a diaper incorporating the absorbent material. The temperature and pressure disclosed in WO '625 are not disclosed as conditions for manufacturing an absorbent sheet. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature would have an effect on absorption properties, and the '165 patent teaches that a cooler temperature provides the most dense zone of the web.

The unexpected and unpredictable results achieved by the present invention are fully set forth in the specification. The excerpt provided above from the specification at page 2, lines 3-13 identifies two disadvantages associated with the absorbent web of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent webs than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public. The present invention overcomes these disadvantages and improves the absorbent properties of an absorbent web of WO '625 that has been subjected to the test temperature and pressure disclosed therein.

In particular, page 9, line 4 through page 11, Table B of the specification compares presently claimed absorbent materials to materials produced according to WO '625. The data for FSEV and EVUL values at page 10 of the specification show that these values are unexpectedly high for the presently claimed absorbent webs compared to a web prepared

in accordance with WO '625, i.e., 50°C, 5.5 bar, 48 seconds (see specification, page 9, lines 32-33 for a definition of "Comparison").

Further, as stated at page 10, lines 2-5 of the specification with respect to FSEV values:

> "The data show that the FSEV values of the material according to the present invention (with the exception of 80 bar/150°C) are distinctly higher than those of the compressed material described in WO 01/56625 after just 30-60 seconds. The data also show that the final value is almost reached after about 300 seconds."; and

with respect to EVUL values at page 10, lines 13-16 of the specification:

> "The samples produced according to the present invention are faster than the comparative sample in water takeup under pressure of 0.5 psi. Only the sample produced at 80°C/150 bar gives the same value after 10 seconds, but here too all other measured results are better than with the comparative sample."

The comparative sample referred to was prepared in accordance with WO '625, i.e., 5 bar, 48 seconds, and 50°C (see specification, page 9, lines 32-33).

The patent specification, at page 9, lines 6-17, provides additional evidence of the unexpected results provided by a presently claimed absorbent material over an absorbent material of WO '625, stating:

> "The compressed material is dimensionally stable; that is, *the material expands insignificantly, if at all, even in the course of prolonged storage at room temperature and relative humidities of preferably less than 60%.* This dimensional stability was found with all samples which were compressed at a temperature of more than 60°C and a pressure of more than 5 bar. In the case of the comparative material produced according to WO 01/56625, in contrast, an expansion of the material took place under the abovementioned conditions:

Sample [mm]	Thickness directly after compression [mm]	Thickness after 60 days
1	0.8	2.4
2	0.7	1.8
3	0.7	1.9
4	0.8	2.3" (emphasis added)

In addition to dimensional stability and web thinness, the compressed absorbent webs of the present invention exhibit improved aqueous fluid absorption properties over a compressed web made in accordance with the test procedure of WO '625. This is clearly and simply demonstrated in the present specification at page 7, line 6 through page 8, line 31. The data compares a claimed absorbent material to an uncompressed material and material compressed using the conditions of WO '625 (specification, page 7, lines 17-18 and 33-35). The data clearly show that compressing in accordance with the present claims improves retention and teabag values, which means that the presently claimed SAP-containing web can absorb more liquid than webs of WO '625. The present absorbent material clearly , unexpectedly, and unpredictably outperformed the material compressed according to the test procedure of WO '625.

As discussed below, the above comparative data also show that the pressed materials of WO '625 do not inherently possess properties that render the present claims obvious, as contended by the examiner.

The comparative examples of the present specification further show the importance of compression at no less than 60°C. Comparative Examples 2, 3, 5, and 6 of the specification were pressed at 50°C, i.e., the same temperature as WO '625. These examples show that pressing at a high pressure, but low temperature, "does not result in significant improvement" (specification, page 15, lines 12-13, for example). These comparative examples are as close or closer to the claimed invention than the WO '625 disclosure, and further show the unexpected and unpredictable results achieved by the present invention.

The examiner has questioned the unexpected results demonstrated by the present invention and the basis of these unexpected results. With respect to present claim 1, which incorporates the features of original claim 12, the examiner's following contentions cannot be maintained:

> "As to claims [sic] 12, Whitmore does not teach dimensional stability, however WO '625 teaches that "certain web materials are subjected to compression at one or more times during the construction" and further teaches that "after the web material has been compressed, there is tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web. However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112-2112.02"

The MPEP sets forth the requirements to support an assertion of inherency. For example, the MPEP states:

> "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not *necessarily* possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433." (MPEP §2112.01, emphasis in original); and
>
> "'In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)...
>
> The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency." (MPEP §2112)

It is submitted that the examiner has not met the initial burden required to support that the claimed material is identical or substantially identical to the material prepared in WO '625. The present claims recite a material that exhibits substantially

improved absorption results and dimensional stability compared to the compressed material of WO '625.

An SAP-containing web of WO '625 does *not* inherently possess the properties exhibited by the present invention, as demonstrated by the unexpected dimensional stability and improved absorption properties set forth in the specification and above. Furthermore, WO '625 does *not* disclose all limitations of the claims because the reference lacks a teaching of the claimed temperature *and* pressure. The '165 patent also fails to teach dimensional stability, and nevertheless is directed to an entirely different type of web material.

Based on these substantial differences, the examiner has failed "to provide objective evidence or cogent technical reasoning" to support an assertion that the present claims necessarily flows from the teaching of WO '625, alone or in combination with the '165 patent.

In prior Office Actions, the examiner provided reasoning to support the rejection of various dependent claims. Appellants wish to address, and point out errors, in this reasoning.

With respect to the examiner's comments regarding claims 13-16, the examiner merely refers to webs disclosed in WO '625 that are untreated and treated. The "treated" webs referred to by the examiner are Examples 7-10 of WO '625. Appellants fail to see where the "treated" webs are equated to "pressed and heated". Rather, "treated" means having a polymer added to fiber by *in situ* polymerization (i.e., see WO '625, table, page 34, untreated has "0" weight of polymer). All treated webs have a specified amount of SAP applied thereto. Both treated and untreated webs of WO '625 were tested for FSEV and EVUL as set forth in WO '625 at page 31, lines 33 through page 32, line 4. Therefore, WO '625 is comparing fibers *free* of SAP (untreated) to fibers having SAP (treated). The examiner is incorrect in the comparison described in the Office Action.

Furthermore, the present specification compares a presently claimed SAP-containing web to webs of WO '625 having SAP applied thereto. Applicants have shown

unexpected results achieved by an increased temperature and modified pressure over WO '625 (see specification, page 9, line 4 through page 10, line 16).

With respect to claim 9, WO '625 may arguably disclose a web density of 0.005 to about 0.12 gm/cm, but claim 9 recites a density of "not less than 0.5 g/ccm to 1.2 g/ccm. The claimed density therefore is from 4 to 240 *times* more dense than the web of WO '625. The cited references therefore fail to recite every feature of the claimed invention, and a case of *prima facie* obviousness cannot be maintained. See Section VIII.B., above.

The examiner also states in the Office Action:

> "However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). In the following paragraph, WO'625, states that each of these factors are easily controlled and maybe optimized to achieve the desired performance (page 27, lines 19-22). With respect to Applicant's arguments, the rationale to modify the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law."

However, at page 26, line 31-41, WO '625 teaches that even compressed webs have a "tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web" (see lines 36-38). Although WO '625 reduces the relaxing phenomenon, the reference to fails to teach a reduction in the amount of relaxation as presently claimed (and as set forth in the specification and evidenced with objective, comparative data), and very importantly fails to teach or suggest *how* to overcome this tendency of fiber relaxing. Further, with respect to page 27, lines 19-22, WO '625 is not referring to compression as a factor that can be optimized but to the "swelling of the absorbent gelling particles" (page 17, line 14). The factors referred to are those that effect strikethrough and rewet, i.e., SAP concentration, degree of crosslinking, uniformity of SAP distribution, particle size distribution, and particle hydrophobicity (WO '625, page 27, lines 13-23). Such factors are not related to and are independent of the pressure and temperature utilized to manufacture the SAP-containing web.

The examiner has contended that it is not clear that the Comparative Examples were made by the process of WO '625. To the contrary, the specification is replete with references to the Comparative Examples being made by the process of WO '625. WO '625 teaches a specific compression at page 31, lines 33-43, wherein applying 5.5 bar pressure at 50°C for 48 seconds compressed an SAP-containing web from 4.5 to "approximately 0.67 mm". This clearly shows that, in the above tests, applicants utilized the pressing conditions utilized by WO '625 at page 31, lines 33-43. The process disclosed in WO '625 is a standard pressing step used in a standard test. Accordingly, the pressure/temperature conditions of WO '625 are *not* varied, and are disclosed in WO '625 and the present specification. For example, see specification, page 2, lines 3-13; page 7, lines 11-22; page 8, line 33 through page 9, line 2; and page 9, lines 4-17 (note "insignificant, if at all" expansion for a presently claimed web). Importantly, note page 9, lines 31-34 and page 7, lines 17-18 of the specification *defining* a comparative web made in accordance with WO '625. Also see page 14, lines 36 and 37; page 15, line 15 and 16; page 18, lines 32 and 33; and page 19, lines 11.

The present specification therefore clearly describes the preparation of comparative webs that were tested, and clearly demonstrates the unexpected results achieved over those comparative webs, i.e., comparative SAP-containing webs prepared at 50°C, 5.5 bar, and 48 seconds.

The examiner's statements regarding time as a factor in the present invention are incorrect. Time is not a factor. The FSEV and EVUL data referred to by the examiner show the amount of liquid *absorbed over time*. The time (48 seconds) is merely to standardize the test for comparative purposes. The time in the tables at page 10 of the specification do not correlate to the time the web is subjected to the claimed temperature and pressure.

With further respect to the time variable the present webs are used, for example, in incontinence products and diapers. Initially, the article has to be as thin as possible for discreetness, and also remain as thin as possible even if stored for long times prior to use. Upon use, typically in an adult incontinence product, the article needs to absorb as much urine as possible, but not necessarily in zero time or immediately. Even if an inventive web does not absorb urine faster than a web of WO '625 at some initial or

intermediate period of use, the inventive webs are still thinner and absorb more urine over time. In short, the time disclosed in the tables of page 10 of the specification simply is not a process variable.

Accordingly, in view of the data provided in the specification, it is submitted that an SAP-containing web, prepared as claimed, possesses nonobvious differences over the web disclosed in WO '625. In addition to the nonobvious differences between the presently claimed absorbent materials and WO '625 that are fully and clearly set forth in the specification, *by objective data*, WO '625 provides no apparent reason for a person skilled in the art to press at a temperature of not less than 60°C. WO '625, alone or taken with the '165 patent, provides no hint or suggestion, let alone any incentive, for a person skilled in the art to consider increasing the claimed pressing temperature with any reasonable expectation of providing the unexpectedly improved results demonstrated by the presently claimed absorbent webs.

WO '625 utilizes a pressing temperature of 50°C in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant has sat in a wetted diaper, then stood up. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature and pressure would have an effect on absorption properties. The '165 patent is directed to an entirely different type of web and wherein temperature and pressure are needed during web formation to bond and entangle SAP particles and into the fiber. This is not necessary in the present invention because an *in situ* polymerization bonds the SAP to the fibers and entanglement is not required. Further, the '165 patent *discourages* an increase in pressing temperature because the '165 patent teaches that the *cooler* surface of the absorbent article is the *denser* surface.

It is submitted that the examiner has failed to establish a *prima facie* case of obviousness of the present claims over the cited references because (a) there is no apparent reason to combine the elements in a fashion claimed (WO '625 discloses a single temperature and the '165 patent teaches that a cooler region provides a more dense web); (b) the modification did not have a reasonable expectation of success (the '165 patent discourages an increased temperature when a dense web is desired); and (c) the references do not teach all

the claimed limitations (the references alone or in combination fail to teach the claimed temperature *and* pressure *and* dimensional stability). In addition, the present invention has demonstrated unpredictable and unexpected results. Therefore, the rational supporting present rejection cannot be used (see pages 18 and 19 above).

Furthermore, the examiner has failed to consider appellants' evidence rebutting a *prima facie* case of obviousness. The examiner relies upon the webs of WO '625 inherently possessing the properties of a claimed web. This examiner's inherency argument has been addressed above, and it fails because of the unexpected and unpredictable improvements provided by the claimed materials. Although these differences were pointed out in a previous response, they were overlooked and not considered. Irregardless, if the examiner considers the data in the specification as insufficient, it is *incumbent* in the examiner to specifically set forth facts and reasoning supporting that determination. (MPEP §2145). The examiner has failed to provide such facts and reasoning.

For all the reasons set forth above, appellants submit that claims 1-5, 9-11, 13-18 and 22-24 are patentable over a combination of WO '625 and the '165 patent under 35 U.S.C. §103, and that the rejection should be reversed.

4. Rejection of Claims 6 and 8 as Being Obvious over WO '625 in View of the '165 Patent

Claims 6 and 8 also stand rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3. Claim 6 recites the material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites the material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water. WO '625 and the '165 patent, each alone or in combination, fail to teach or suggest the features recited in claims 6 and 8.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 1. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials further render claims 6 and 8 nonobvious over a combination of WO '625 and the '165 patent. The

combination of references also fail to teach every claimed feature of claims 6 and 8 as required to establish a *prima facie* case of obviousness.

With respect to the directional expansion values recited in claims 6 and 8, attention is particularly directed to the specification at page 12, lines 7-9, stating in reference to the claimed absorbent materials:

> "The 30x50 mm samples were observed to swell essentially in the z-direction. A swelling of about 10% was measured in the x- or y-direction, the third dimension remained unchanged (the web is more easily extendable in one axis than in the other dimension)."

Also see the data at page 8, lines 4 and 13, and in the Expansion Factors at pages 12-19, of the specification, wherein the inventive absorbent materials show a substantial expansion factor of 11.2 to 32.5 in the z-direction (Examples 1-11) and Comparative Examples 2, 3, 5, and 6 prepared very similarly to the pressed web WO '625 did *not* expand in the z direction, i.e., expansion factor of 1.1 to 4.6[1]. The SAP-containing webs of WO '625 therefore do not inherently exhibit the features recited in the claims. To the contrary, SAP-containing webs of claims 6 and 8 demonstrate unexpected and unpredictable benefits over the pressed webs of WO '625.

In addition, the references, each alone or in combination, fail to teach or suggest all of the claimed features of claims 6 or 8, and accordingly a case of *prima facie* obviousness cannot be established. See Section VIII.B., above.

Appellants therefore submit that claims 6 and 8 are patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

5. Rejection of Claim 7 as Being Obvious over WO '625 in View of the '165 Patent

Claim 7 also stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3.

[1] WO '625 discloses pressing 50°C and 5.5 bar. Comparative Examples 2, 3, 5, and 6 were pressed at 50°C and either 6 bar or 80 bar. These comparative examples are closer to the claimed invention than WO '625 because of a higher pressing pressure.

Claim 7 recites "[A] material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water." Claim 7 neither recites nor relies upon process parameters, such as pressing temperature and pressure. Therefore, the process parameters recited in WO '625, i.e., 50°C and 5.5 bar, and in the '165 patent, are not relevant.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 7. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials render claim 7 nonobvious over a combination of WO '625 and the '165 patent. The combination of references also fail to teach every claimed feature of claim 7, as required to establish a *prima facie* case of obviousness. See Section VIII.B., above.

Appellants therefore submit that claim 7 is patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

6. Rejection of Claim 21 as Being Obvious over WO '625 in View of the '165 Patent

Claim 21 stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the reasons set forth above in Section VIII.C.3. Claim 21 recites a "process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar."

Process claim 21 recites a particular temperature and pressure that differ from the pressing temperature and pressure disclosed in WO '625. As set forth in Section VIII.C.3., above, an absorbent material made by the process of WO '625 does not inherently possess the features of a compressed material made by the method recited in claim 21. Furthermore, the unexpected and unpredictable results provided by a material made in accordance with process claim 21 render claim 21 nonobvious over a combination of WO '625 and the '165 patent.

With further respect to claim 21, the examiner has stated that WO '625 teaches "50°C which is about 60°C" and 5.5 bar "which can be about 3 bar". This statement lacks support. While the term "about" avoids a strict numerical interpretation, the term cannot be interpreted as broadly as suggested by the examiner.

The term "about" should be interpreted in context, in particular with reference to the intrinsic evidence for the context in which it is used. *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995). When the intrinsic evidence points to the criticality of a particular parameter, the term "about" is interpreted narrowly. *See Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.* 476 F.3d 1321, 1328-1329 (Fed. Cir. 2007) (narrowly construing an "about 1:5" claim limitation in view of intrinsic evidence). A claim range is critical, for example, when the specification indicates that it is important to select a value in the particular range and further indicates that such a selection is related to achieving the objects of the invention. *See Conopco, Inc., v. May Dept. Stores Co.*, 46 F.3d 1556, 1561 (Fed. Cir. 1994) (finding a composition's ratio of isoparaffin to alkyl phosphate salt critical). The presence of other disclosed ranges guides a narrow interpretation of the term "about," in particular interpretation should not render the distinction between the other disclosed ranges meaningless. *See Ortho*, 476 F.3d at 1327 (narrowly construing an "about 1:5" claim limitation "because to find otherwise would allow the scope of the more specifically identified ratio, 1:5, to encompass a range of ratios that could potentially render meaningless another claim's limitation").

Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 1217-18 (Fed. Cir. 1991) affirmed that the use of the word "about" in a claim is appropriate where the claim contains a range of components with no absolute boundaries and that the use of the word "about" in a claim is only limited to the extent that prior art exists, that is, prior art which would limit broad interpretation of the claim. The Patent Office, in MPEP §2173.05 (b), further characterizes the *Amgen* case as follows:

> "However, the court held that claims reciting "at least about" were invalid for indefiniteness where there was close prior art and there was *nothing in the specification, prosecution history, or the prior art* to provide any indication as to what range of specific activity is covered by the term "about." *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991)." (Emphasis added)

It also must be kept in mind that WO '625 discloses *only one* temperature (50°C) and *only one* pressure (5.5 bar). In addition, *Comparative* Examples 2, 3, 5, and 6 of the present specification press at 50°C and greater than 3 bar, thereby clearly showing that 50°C is *not* encompassed by "about 60°C".

In view of the fact that WO '625 solely teaches 50°C, and in view of the present disclosure, wherein 50°C is a comparative temperature, it cannot be contended with any degree of reason that a claimed temperature of about 60°C can be extended to include a temperature of 50°C. The broad interpretation of "about" suggested by the examiner renders the disclosed temperature meaningless because to include 50°C makes the temperature range significantly wider than the about 60°C temperature disclosed in the specification. Thus, the suggestion that "about 60°C" encompasses 50°C is erroneous.

Nowhere in the WO '625 disclosure is it taught or suggested that the temperature can be increased by 20%, or the pressure reduced by close to 50%. WO '625 provides a single temperature and pressure, neither one of which can be changed because then the test based on this temperature and pressure would be worthless. The references provide no incentive or apparent reason for a person skilled in the art to raise the temperature to "about 60°C" (or higher) *and* utilize a pressure of "about 3 bar" (or greater), which is a higher temperature and lower pressure disclosed in to WO '625. In particular, if WO '625 teaches a high pressure improves performance, why *decrease* the pressure disclosed in WO '625.

The '165 patent fails to cure the deficiencies of WO '625. The '165 patent utilizes pressing conditions to form an entirely different type of web, and specifically discloses that *increasing* pressing temperature *decreases* density. Persons skilled in the art therefore would not consider pressing at an increased temperature because a less dense absorbent material, which the art wishes to avoid, would be expected.

Appellants therefore submit that claim 21 is patentable under 35 U.S.C. §103 over a combination of WO '625 and the '165 patent for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

7. Response to Examiner's Answers to Applicant's Arguments

At pages 3-5 of the Final Office Action of May 28, 2008, the examiner responds to arguments made in Amendment "A", filed February 20, 2008. Appellants now address the examiner's answers.

> (a) "The fact that the WO '625 discloses a pressing pressure and temperature for testing the web indicates an understanding that the pressure and temperature of compression can affect an absorbent web with a superabsorbent polymer."

The examiner misstates the reason why an *already prepared* web is pressed at 50°C and 5.5 bar. The webs are pressed in the test set forth in WO '625 to simulate a wetted diaper on a seated child after the child stands. The test demonstrates how the web is expected to react under actual conditions of use. The test in no way "indicates an understanding that the pressure and temperature of compression can affect a superabsorbent web." All webs are tested by the same protocol in order to obtain meaningful data for a comparison between different webs. The examiner's basis for the above contention is simply erroneous.

> (b) "Whereas WO'625 has the structure and materials of the claimed invention it would be reasonable to presume that WO'625 inherently has the properties of WO'625."

Although it may be reasonable to presume that the claimed absorbent material made by the claimed method inherently has the properties of an absorbent material of WO '625 (which appellants believe the examiner is attempting to state), appellants have shown with *objective data* that a claimed absorbent web has different and improved properties over a web that is pressed and heated as set forth in the procedure of WO '625. These unexpected improvements are fully set forth in Section VIII.C.3. above. A web of WO '625 therefore does not inherently have the properties of a presently claimed material.

> (c) "However as the claims are also drawn to the process of making a material formed of a superabsorbent polymer and fibers, Aberson provides a finding that is known in the art to optimize the pressure and temperature of a heating and compression process."

First, the '165 patent is directed to an entirely different type of absorbent web. The '165 patent applies heat and pressure to bond and entangle superabsorbent polymer

particles with fibers during manufacture of the web. In contrast, the present claims are directed to an absorbent web wherein monomers are polymerized in the presence of the fibers to form a superabsorbent polymer bound to the fiber. The present invention does not rely upon entanglement and heat induced bonding. In accordance with present invention, heat and pressure are not required for bonding and/or entanglement, and are optional during initial preparation of the web. A present material is heated and pressed after the *in situ* polymerization to compress the material. Accordingly, the structure of the '165 patent web and the present absorbent material are entirely different. The '165 patent discloses preferred temperatures and pressures for forming an entangled-type web. Such a temperature and pressure cannot *a priori* be considered optimum for a type of absorbent material recited in the present claims.

More importantly, the '165 patent teaches pressing using a differential temperature such that the coolest region of the pressed web is the most dense. If two plates are used, the most dense zone of the web is the center which is the coolest zone of the web. See '165 patent, Figs. 3-5, wherein zone 20 is the coolest *and* most dense zone. This is contrary to the present invention which requires elevated heat and pressure to provide a dense web. The '165 patent therefore discourages a person skilled in the art to alter the test conditions of WO '625 and increase the pressing temperature.

> (d) "Therefore Aberson and WO'165 [sic] have the same structure, produced of the same materials and produced by the same process."

As discussed above in (c), the absorbent materials of the '165 patent and WO '625 do *not* have the same structure and are *not* produced by the same process. The '165 patent absorbent web is a bonded/entanglement type web, wherein the fibers and superabsorbent polymer are mixed, and pressed and heated. In the present process and WO '625, the superabsorbent polymer is prepared *in situ* in the presence of the fibers, then pressed and heated. Accordingly, the articles of the '165 patent and WO '625 are different and are prepared by different processes.

D. REJECTION OF CLAIMS 22-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WO '625 IN VIEW OF THE '165 PATENT AND SOERENS ET AL. U.S. PATENT NO. 7,115,321 ('321)

Method claims 22-24 also stand rejected under 35 U.S.C. §103 for the reasons set forth above in Section VIII.C. with respect to WO '625 and the '165 patent and because the '321 patent teaches the absorption of water vapor by an absorbent material.

First, the examiner summarily maintained a rejection of claims 22-24 because "the claims have not been amended and therefore the previous Office Action Rejection of 5/17/2007 is maintained" (Office Action, October 19, 2007, page 6). The examiner failed to consider the amendment to claim 1, filed August 17, 2007. Because claims 22-24 depend from claim 1, these claims were amended and the amended claims were not considered by the examiner.

Second, claims 23 and 24 are not directed to absorbing water vapor, but to absorbing an aqueous fluid.

Third, the '321 patent is directed to an absorbent binder system that is applied to a substrate, and the system crosslinks on the substrate to form a laminate. The '321 patent is not remotely directed to an absorbent material comprising fibers and a superabsorbent polymer.

Fourth, the patentability of claim 1, from which claims 22-24 depend, over a combination of WO '625 and the '165 patent has been fully addressed above. The '321 patent fails to overcome the deficiencies of WO '625 and the '165 patent. As stated above, the '321 patent is directed to an absorbent binding coating and fails to teach or suggest that a compressed material prepared according to claim 1 can be used as the absorbent binding coating. See the Example of the '321 patent at columns 16 and 17. The '321 patent also does not address the dimensional stability overcome by the presently claimed absorbent material.

It is submitted that, in view of the novelty and nonobviousness of the absorbent material of claim 1, uses of the novel and nonobvious material also are novel and nonobvious. Appellants therefore submit that the rejection of claims 22-24 under 35 U.S.C. §103 over a combination of WO '625, the '165 patent, and the '321 patent should be reversed.

IX. CONCLUSION

In view of the foregoing remarks, appellants respectfully request that the Board reverse the final rejection of claims 1-11, 13-18, and 21-24, and that all pending claims should be allowed.

Dated: November 24, 2008

Respectfully submitted,

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CLAIMS APPENDIX

Claims on Appeal in Application Serial No. 10/532,279

1. (Previously presented) A material formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, wherein an increase in thickness 60 days after compression is less than 100% based on the thickness directly after compression.

2. (Previously presented) The material of claim 1 obtainable by pressing at not less than 70°C.

3. (Previously presented) The material of claim 1 obtainable by pressing at not less than 80°C.

4. (Previously presented) The material of claim 1 obtainable by pressing at not less than 5 bar.

5. (Previously presented) The material of claim 1 obtainable by pressing at not less than 10 bar.

6. (Previously presented) The material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

7. (Previously presented) A material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

8. (Previously presented) The material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water.

9. (Previously presented) The material of claim 1 that has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm.

10. (Previously presented) The material of claim 1 wherein a ratio of teabag to retention in 0.9% NaCl solution is greater than 2.

11. (Previously presented) The material of claim 1 wherein retention in 0.9% NaCl solution is greater than 3 g/ccm.

12. (Cancelled)

13. (Previously presented) The material of claim 1 wherein an FSEV after 60 seconds is at least double that of an uncompressed material.

14. (Previously presented) The material of claim 1 wherein an FSEV after 2 minutes is at least 60% higher than that of an uncompressed material.

15. (Previously presented) The material of claim 1 wherein an EVUL after 60 seconds is at least double that of an uncompressed material.

16. (Previously presented) The material of claim 1 wherein an EVUL after 2 minutes is at least 60% higher than that of an uncompressed material.

17. (Previously presented) The material of claim 1 wherein an AAP (0.7 psi) in 0.9% NaCl solution is greater than 5 g/ccm.

18. (Previously presented) A laminate comprising a material of claim 1.

19. (Canceled)

20. (Canceled)

21. (Previously presented) A process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar.

22. (Previously presented) A method of absorbing water vapor comprising contacting the water vapor with a material of claim 1.

23. (Previously presented) A method of absorbing an aqueous fluid comprising contacting the aqueous fluid with a material of claim 1.

24. (Previously presented) The method of claim 23 wherein the aqueous fluid comprises a body fluid.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.

Docket No.: 29827/41149
(PATENT--FEE)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Dieter Hermeling et al.

Application No.: 10/532,279 | Confirmation No.: 8528

Filed: April 21, 2005 | Art Unit: 1794

For: Ultra-Thin Materials Made from Fibre and Superabsorbent | Examiner: Jennifer A. Steele

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in triplicate to support the Notice of Appeal in this application filed on August 25, 2008. This Appeal Brief is accompanied by the fee for filing an Appeal Brief under 37 C.F.R. §1.17(b) and a one-month extension of time under 37 C.F.R. §1.136(a). Accordingly, this Appeal Brief was timely filed and no further fees are believed due.

Any additional required fee may be charged, or any overpayment credited, to Deposit Account No. 13-2855.

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II. REAL PARTY IN INTEREST

The real party in interest in this appeal is BASF Aktiengesellschaft (BASF), Ludwigshafen, Germany, the assignee of the entire right, title, and interest to the above-identified patent application. The assignment was recorded in the United States Patent and Trademark Office ("USPTO") at Reel 17087, Frame 0178 on October 14, 2005, which constitutes the entire chain of title from the inventors to BASF.

III. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to appellants, appellants' legal representative, or the assignee which will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

IV. STATUS OF CLAIMS

A. HISTORY

This application was originally field with claims 1-21. Claims 22-24 were added to the application in a preliminary amendment.

B. CURRENT STATUS OF CLAIMS

Claims cancelled: 12, 19, and 20.

Claims withdrawn from consideration but not cancelled: None.

Claims pending: 1-11, 13-18, and 21-24.

Claims allowed: None.

Claims rejected: 1-11, 13-18, and 21-24.

C. CLAIMS ON APPEAL

The claims on appeal are claims 1-11, 13-18, and 21-24.

V. STATUS OF AMENDMENTS

Appellants filed an amendment on February 20, 2008, which was entered. A final rejection was issued on May 28, 2008. Accordingly, appellants understand that the current form of the claims is represented by Amendment "A", filed February 20, 2008, and as reproduced in the Claims Appendix below.

VI. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter relates to a material formed from a superabsorbent polymer (SAP) and fibers (claims 1-17), a laminate comprising the material (claim 18), a process for forming a compressed material (claim 21), and methods of using the material (claims 22-24). The inventors have found that the claimed material exhibits a substantially one-dimensional swelling performance upon application of water or aqueous fluids (specification, page 4, lines 5 and 6).

In particular, the presently claimed materials are ultrathin and possess properties desirable in hygiene and non-hygiene applications with respect to absorbing aqueous fluids. These desirable properties include: (a) expansion essentially in only one direction upon contact with liquid, (b) present in compressed form to minimize storage and transportation costs and to retain shape during storage, (c) a high absorbency for aqueous fluids, (d) a fast liquid acquisition without pressure and under pressure, and (e) suitable for use as a component of laminates (specification, page 1, lines 32-38). These desirable properties are achieved by an application of heat and pressure (specification, page 2, lines 30 and 31).

The recited material is formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar (independent claim1). The material exhibits an increase in thickness 60 days after compression of less than 100%, based on the thickness directly after compression (claim 1). See specification, page 1, lines 5-8 and page 4, lines 15-17.

Claims 2 and 3 recite that the material is obtained by pressing at not less than 70°C and not less than 80°C, respectively (specification, page 3, lines 5 and 6).

Claims 4 and 5 recite that the material is obtainable by pressing at not less than 5 bar and not less than 10 bar, respectively (specification, page 2, lines 34-36).

Claim 6 recites that the material expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites that

the material expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Claim 9 recites that the material has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm (specification, page 5, lines 7-16).

Claim 10 recites that the material has a ratio of teabag to retention in 0.9% NaCl solution of greater than 2 (specification, page 5, lines 18-25).

Claim 11 recites that the material has a retention in 0.9% NaCl solution of greater than 3 g/ccm (specification, page 5, lines 27-29).

Claim 13 recites that the material has an FSEV after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 1-2). Claim 14 recites that the material has an FSEV after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 4-5).

Claim 15 recites that the material has an EVUL after 60 seconds at least double that of an uncompressed material (specification, page 6, lines 7-8). Claim 16 recites that the material has an EVUL after 2 minutes at least 60% higher than that of an uncompressed material (specification, page 6, lines 10-11).

Claim 17 recites the material has an AAP (0.7 psi) in 0.9% NaCl solution greater than 5 g/ccm (specification, page 6, lines 13-16).

Claim 18 recites a laminate comprising a material prepared from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, as recited in claim 1 (specification, page 1, lines 5-8; page 4, lines 15-17; and page 6, lines 18-20 and line 37.

Independent claim 7 recites a material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water (specification, page 4, lines 5-10).

Independent claim 21 recites a process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar (specification, page 1, lines 5-8 and page 4, lines 15-17).

Claims 22-24 recite methods of using the material of claim 1 including absorbing water vapor (claim 22) and absorbing aqueous fluids (claim 23), including a body fluid (claim 24), specification page 6, lines 18-23.

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-11, 13-18, and 21-24 would have been obvious under 35 U.S.C. §103 over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No. 4,186,165 ('165).

Whether claims 22-24 would have been obvious under 35 U.S.C. §103 over WO '625 patent in view of the '165 patent and Soerens et al. U.S. Patent No. 7,115,321 ('321).

For purposes of the issues on appeal, dependent claims 2-5, 9-11, 13-18, and 22-24 are grouped and argued with independent claim 1.

Claims 6 and 8 form a second group that are argued separately.

Claim 7 forms a third group that is argued separately.

Claim 21 forms a fourth group that is argued separately.

VIII. ARGUMENT

A. INTRODUCTION

Appellants submit that the rejections issued in the final Office Action are in error, and that the present application is in condition for allowance. Appellants respectfully request the Board to review and reverse each of the rejections issued in the final Office Action.

B. PROPER BASIS FOR A §103(a) OBVIOUSNESS REJECTION

A determination that a claimed invention would have been obvious under §103(a) is a legal conclusion involving four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Secondary considerations of non-obviousness include factors such as commercial success, long-felt but unresolved needs, the failure of others, and/or *unexpected results achieved by the claimed invention. Id.* Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art which the claimed subject matter pertains, who is presumed to have all prior art references in the field of the invention available to him/her. In *re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Furthermore, obviousness must be determined as of the time the invention was made and in view of the state of the art that existed at that time. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-51 (Fed. Cir. 1988).

The Patent Office must clearly articulate facts and reasons why the claimed invention "as a whole" would have been obvious to a hypothetical person having ordinary skill in the art at least as of the claimed invention's effective filing date. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007) (citing with approval In *re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")); see also MPEP §2143 ("The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of reason(s) why the claimed invention would have been obvious.").

To reach a proper determination under 35 U.S.C. §103(a), the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicants' disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the *facts* gleaned from the prior art. MPEP §2142.

As recently articulated by the Court of Appeals for the Federal Circuit in *Ortho-McNeil Pharmaceutical Inc. v. Mylan Laboratories Inc.*, 86 USPQ 2d, 1196, 1201-2 (Fed. Cir. 2008):

> "As this court has explained, however, a flexible TSM test remains the primary guarantee against a non-statutory hindsight analysis such as occurred in this case. *In re Translogic Tech., Inc.* 504 F.3d 1249, 1257 [84 USPQ 2d 1929] (Fed. Cir. 2007) ("[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.)."

Furthermore, to establish a *prima facie* case of obviousness, the examiner must satisfy three requirements. First, as the U.S. Supreme Court recently held in *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 (2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was *an apparent reason* to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to *identify* a *reason that would have prompted a person of ordinary skill in the relevant field to combine the elements* in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost

of necessity will be combinations of what, in some sense, is already known." (emphasis added, *KSR*, *supra*). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. In *re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

Once the Patent Office properly sets forth a prima facie case of obviousness, the burden shifts to the applicants to come forward with evidence and/or argument supporting patentability. *See In re Glaug*, 283 F.3d 1335, 1338 (Fed. Cir. 2002). Rebuttal evidence is merely a showing of facts supporting the opposite conclusion." *In re Piasecki*, 745 F.2d 1468,1472 (Fed. Cir. 1984). Evidence rebutting a prima facie case of obviousness can include: (a) "evidence of unexpected results," *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348 1369 (Fed. Cir. 2007); (b) "evidence that the prior art teaches away from the claimed invention in any material respect," *In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003); and, (c) evidence of secondary considerations, such as commercial success or long-felt yet unmet needs, *WMS Gaming, Inc. v. International Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). The Patent Office must always consider such evidence supporting patentability. *See, e.g., In re Sullivan*, 498 F.3d 1345, 1352-53 (Fed. Cir. 2007) (reversing a Patent Office decision of obviousness because the Patent Office failed to consider the applicants' evidence rebutting a prima facie case of obviousness). If the Patent Office determines that such evidence is not compelling or is insufficient, then the Patent Office should specifically set forth the facts and reasoning supporting that determination. MPEP §2145 (8th Ed., Rev. 6, Sept. 2007).

C. REJECTION OF CLAIMS 1-11, 13-18, AND 21-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WHITMORE ET AL. WO 01/56625 (WO '625) IN VIEW OF ABERSON ET AL. U.S. PATENT NO. 4,186,165 ('165)

Material claims 1-11 and 13-17, laminate claim 18, method of production claim 21, and method of absorbing claims 21-24 stand rejected under 35 U.S.C. §103 based on the assertion that WO '625 and the '165 patent teach the claimed structure, which is produced by a process that substantially comprises every limitation of the disclosed process. See Office Action of May 28, 2008, page 2.

1. Disclosure of WO '625

WO '625 discloses the preparation of absorbent materials by spraying a blend containing superabsorbent polymer (SAP) particles, superabsorbing forming monomer, an initiator, and water on a fibrous web, then subjecting the web to polymerization conditions. WO '625 fails to teach a pressing temperature of not less than 60°C *or* a pressure greater than 5.5 bar.

WO '625 teaches some of the technical features of the instant invention, but *not* the claimed conditions of heating *and* pressing the superabsorbent material. WO '625 teaches "*in situ* polymerization" of a monomer solution (also containing SAP particles) sprayed onto a pre-formed, non-woven web to produce an SAP-containing non-woven web. WO '625 generally discloses compressing the SAP-containing web during manufacture of a disposable hygienic articles at page 26, lines 31-41. This disclosure contains *no* temperature and *no* pressure used in a compression step.

The sole specific disclosure in WO '625 presses at 50°C and 5.5 bar to prepare a sample for measuring the FSEV value (page 31, line 33 through page 32, line 4). The FSEV is a standard test used in the art to estimate the degree expansion of a disposable hygienic fabric. The related EVUL value estimates the rate of expansion. (WO '625, page 26, lines 4-29). In light of the WO '625 specification, the disclosed testing conditions can only be understood as typical conditions used in testing an SAP-containing web, not in the preparation of an SAP-containing web.

WO '625 states at page 31, line 33 through page 32, line 4:

> "The free swell expansion volume (FSEV) is determined by measuring the height (thickness) change, in millimeters, of a compressed web material during hydration. The FSEV of the fabrics indicated in Table 3, below, were determined as follows and are reported in Table 3, below: the fabrics were compressed in a Carver Laboratory Press Model #2697 at 7000 pounds of applied load for 48 seconds with the top platen heated to 50°C; a 5 centimeter diameter circle of the fabric was cut from the fabric and the thickness was measured before compression at approximately 4.5 millimeters and after compression at approximately 0.67 millimeters using a Fowler Ultra-digit gauge. the [sic] weight of the circle was recorded and the circle was placed in a dry sample holder; a single 20 milliliter dose of 0.9% saline was

poured on top of the circle; height measurements were taken, with the help of software designed for this purpose, over a ten-minute timeframe every 1.5 seconds. The change in the height of the fabric was measured with a linear variable differential transformer (LVDT, Schaevitz MP-1000) and the data are reported in Table 3 below in milliliters (volume)."

The present specification at page 2, lines 3-13 discusses WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056m^2; 7.000 [sic] pounds load) and a temperature of 50°C for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) The method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625."

This excerpt from the specification identifies two disadvantages associated with the absorbent material of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent materials than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public.

2. Disclosure of Aberson et al. '165 Patent

The '165 patent discloses producing a superabsorbent fabric material by pressing a mixture of wood pulp fluff and grafted superabsorbent. There is no polymerization step disclosed, or used, in the '165 patent process. A specified temperature differential is applied during pressing to generate dense layers of the fabric. In short, the '165 patent teaches an alternative and *different* superabsorbent-containing fabric from that of WO '625.

As disclosed in the '165 patent at column 3, lines 40-50:

> "According to this invention, a densified bonded layer or region is formed in an air-laid, fluffed wood pulp or batt panel containing particulate hydrocolloid material and inherent moisture by simultaneously compacting the panel with a predetermined pressure and subjecting each surface of the panel to a predetermined temperature. As a result, a substantial portion of the hydrocolloid material is fixed in the panel by mechanical entrapment in the densified layer and/or bonding to cellulosic fibers substantially throughout the batt, as will be discussed in greater detail hereinblow."

The '165 further patent states that it is the *cooler* regions of the heated fabric that are the *most* dense. In particular, at column 3, lines 53-68, the '165 patent states:

> "The heat-induced densified bonded layer is formed by raising the temperature of at least one surface of the panel to an extent sufficient to induce migration of the inherent moisture away from that surface and into the panel. *It is believed that the moisture collects at a relatively cooler region within the panel and creates a densified layer in which bonds are formed between the fibers.* The moisture contributes to the bond formation, so that *the most extensive bonding takes place in the relatively cooler region in the panel* where a relatively greater amount of moisture collects. When one of the panel surfaces is subjected under pressures to a relatively lower temperature than the opposite panel surface, the heat-induced densified bonded layer or region is formed nearer to the panel surface subjected to the relatively lower temperature (FIG. 4)." (Emphasis added)

See '165 patent, Figs. 4-6, wherein the dense layer 20 is in the coolest region of the panel (also see '165 patent, column 7, lines 30-56). The '165 patent therefore teaches heating using a temperature differential, wherein moisture is driven from a surface of higher temperature to a surface of lower temperature to increase bonding and entanglement, and accordingly, the density of the cooler surface. The '165 patent also teaches that bonding is achieved by the "inherent moisture" present in the hydrocolloid, as opposed to an *in situ* polymerization of monomers as in WO '625. The panel of the '165 patent therefore is substantially different from fibrous web of WO '625

3. Rejection of Claims 1-5, 9-11, 13-18, and 22-24 as Being Obvious over WO '625 in View of the '165 Patent

Claims 1-6, 8-11, 13-18, and 22-24 stand rejected under 35 U.S.C. §103 as being obvious over WO 01/56625 (WO '625) in view of Aberson et al. U.S. Patent No.

4,186,165 ('165) based on the contention that it would have been obvious to utilize a temperature and pressure disclosed in the '165 present in the process of WO '625, and thereby arrive at the presently claimed invention.

In particular, the examiner contends that the similarities between (a) a combination of WO '625 and '165 patent and (b) the present claims are sufficient to support a 35 U.S.C. §103 rejection, and that the burden is now on the appellants to demonstrate nonobvious differences between the presently claimed superabsorbent material and WO '625. It is submitted that appellants have shown nonobvious differences between the present claims and the cited art, in substantial detail, in the specification.

If mechanical entanglement and bonding of particulate superabsorbent (SAP) particles is conducted as in the '165 patent process, a portion of the SAP particles quite obviously are simply mechanically entrapped in the web and still are capable of being separated from the fibers (e.g., by shaking). WO '625 overcomes this problem of the '165 patent by an *in situ* polymerization of monomer to bond the SAP particles to the web. Accordingly, the '165 patent teaches adding an SAP to a web via entanglement and bonding using heat and pressure. A combination of WO '625 and the '165 patent provides no teaching or suggestion that *in situ* polymerization and pressing and heating, *as claimed*, can improve dimensional stability and absorption properties.

The examiner contends that it would have been obvious to utilize the process conditions of the '165 patent to prepare an SAP-containing web of WO '625. However, the combination of cited references provides no apparent reason for a person skilled in the art to make this jump in reasoning. The examiner apparently is relying upon a hindsight reasoning that the claimed combination is obvious because the two cited references are both in the field of superabsorbent polymers and each discloses one recited feature of the claims.

The Supreme Court recently identified a number of rationales that may be used to support a conclusion of obviousness, consistent with the framework set forth in its decision in *Graham v. John Deere Co.* See *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1739-40 (2007). These and other representative rationales are described at MPEP §2143 (8th Ed., Rev. 6, Sept. 2007).

The rational relied upon by the examiner apparently is as follows:

"A. Combining Prior Art Elements According to Known Methods To Yield Predictable Results

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

(1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

(2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;

(3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that the substitution of one known element for another would have yielded *predictable results* to one of ordinary skill in the art at the time of the invention. *If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious* to one of ordinary skill in the art." (*Fed. Reg., Vol. 72, No. 195*, page 57529 (October 10, 2007, emphasis added).

The present specification provides a description of WO '625 stating:

"Compression by the action of pressure to produce "ultrathin" hygiene articles is described in WO 01/56625. However, the material is subjected to a pressure of about 5.5 bar (fabric area: 0.056 m^2; 7.000 pounds load) and a temperature of 50°C. for a period of 48 seconds. This achieves a compression from originally 4.5 mm to 0.67 mm. These experimental conditions were reproduced and two differences and disadvantages compared with the present invention were ascertained:

a) the material is not dimensionally stable, ie it expands to as much as 1.5 mm over 2 weeks and to as much as 2.4 mm over 8 weeks.

b) the method described in the present invention makes it possible to produce significantly thinner, yet very flexible materials than the material described in WO 01/56625." (specification, page 2, lines 3-13).

The present invention is an improvement over the SAP-containing web of WO '625. WO '625 fails to provide an incentive to apply heat and pressure as claimed, and thereby arrive at the presently claimed invention, which demonstrates new, unexpected, and unpredictable benefits over the SAP-containing web of WO '625.

In particular, WO '625 provides no apparent reason or incentive to utilize the conditions of the '165 patent in the preparation of an SAP-containing web. At most, the '165 patent discloses a preparation of the web based on bonding and mechanical entanglement of the SAP particles by heat and pressure. WO '625 teaches applying SAP particles and monomers to the web, and polymerizing the monomer to form a polymer. The polymerization can be conducted at room temperature or at an elevated temperature and the application of pressure is optional. See WO '625, page 20, lines 31-40; page 26, lines 31-41; and page 29, line 36 through page 30, line 15. In addition, appellants recognized that WO '625 fails to disclose the presently claimed process conditions, and appellants also compared the inventive SAP-containing webs to the compressed materials of WO '625, discussed more fully hereafter.

There also is no apparent reason from WO '625 to modify the temperature and pressure disclosed therein. WO '625 teaches optional heating and pressure in the preparation of a web. WO '625 also teaches pressing a web at 50°C and 5.5 bar for purposes of *testing* a web that already has been manufactured. During preparation of the web, the application of pressure is an optional step (see WO '625, page 26, lines 31-41) and heat optionally is used only to initiate monomer polymerization (WO '625, page 21, lines 31-37 and page 20, lines 3-5, for example) in the preparation of the web. In contrast, the '165 patent requires heat and pressure during manufacture of the web in order to bond and entangle SAP particles in the fibers.

WO '625 fails to teach heating except at the 50°C testing conditions. Persons skilled in the art (a) would have had no apparent reason to press at a temperature of not less than 60°C, (b) actually could consider altering the temperature and pressure disclosed in WO '625 as deterimental to the web, and (c) *would not* have predicted that applying the claimed temperature and pressure would provide the unexpectedly improved results demonstrated by the presently claimed SAP-containing web. This is particularly true after reading the '165 patent, which teaches that the *cooler* surface of the differential heat treatment is the *denser* surface. This teaching would discourage a person skilled in the art from increasing the 50°C temperature disclosed in WO '625.

As stated above, WO '625 utilizes a pressing temperature and pressure of 50°C and 5.5 bar in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant sits in a wetted diaper, then stands, i.e., the temperature and pressure of WO '625 are selected to mimic the typical use of a diaper incorporating the absorbent material. The temperature and pressure disclosed in WO '625 are not disclosed as conditions for manufacturing an absorbent sheet. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature would have an effect on absorption properties, and the '165 patent teaches that a cooler temperature provides the most dense zone of the web.

The unexpected and unpredictable results achieved by the present invention are fully set forth in the specification. The excerpt provided above from the specification at page 2, lines 3-13 identifies two disadvantages associated with the absorbent web of WO '625, i.e., a lack of dimensional instability and thicker, more inflexible absorbent webs than desired for "ultrathin" hygiene articles, e.g., articles used by incontinent adults that must be as thin as possible for wear in public. The present invention overcomes these disadvantages and improves the absorbent properties of an absorbent web of WO '625 that has been subjected to the test temperature and pressure disclosed therein.

In particular, page 9, line 4 through page 11, Table B of the specification compares presently claimed absorbent materials to materials produced according to WO '625. The data for FSEV and EVUL values at page 10 of the specification show that these values are unexpectedly high for the presently claimed absorbent webs compared to a web prepared

in accordance with WO '625, i.e., 50°C, 5.5 bar, 48 seconds (see specification, page 9, lines 32-33 for a definition of "Comparison").

Further, as stated at page 10, lines 2-5 of the specification with respect to FSEV values:

> "The data show that the FSEV values of the material according to the present invention (with the exception of 80 bar/150°C) are distinctly higher than those of the compressed material described in WO 01/56625 after just 30-60 seconds. The data also show that the final value is almost reached after about 300 seconds."; and

with respect to EVUL values at page 10, lines 13-16 of the specification:

> "The samples produced according to the present invention are faster than the comparative sample in water takeup under pressure of 0.5 psi. Only the sample produced at 80°C/150 bar gives the same value after 10 seconds, but here too all other measured results are better than with the comparative sample."

The comparative sample referred to was prepared in accordance with WO '625, i.e., 5 bar, 48 seconds, and 50°C (see specification, page 9, lines 32-33).

The patent specification, at page 9, lines 6-17, provides additional evidence of the unexpected results provided by a presently claimed absorbent material over an absorbent material of WO '625, stating:

> "The compressed material is dimensionally stable; that is, *the material expands insignificantly, if at all, even in the course of prolonged storage at room temperature and relative humidities of preferably less than 60%.* This dimensional stability was found with all samples which were compressed at a temperature of more than 60°C and a pressure of more than 5 bar. In the case of the comparative material produced according to WO 01/56625, in contrast, an expansion of the material took place under the abovementioned conditions:

Sample [mm]	Thickness directly after compression [mm]	Thickness after 60 days
1	0.8	2.4
2	0.7	1.8
3	0.7	1.9
4	0.8	2.3" (emphasis added)

In addition to dimensional stability and web thinness, the compressed absorbent webs of the present invention exhibit improved aqueous fluid absorption properties over a compressed web made in accordance with the test procedure of WO '625. This is clearly and simply demonstrated in the present specification at page 7, line 6 through page 8, line 31. The data compares a claimed absorbent material to an uncompressed material and material compressed using the conditions of WO '625 (specification, page 7, lines 17-18 and 33-35). The data clearly show that compressing in accordance with the present claims improves retention and teabag values, which means that the presently claimed SAP-containing web can absorb more liquid than webs of WO '625. The present absorbent material clearly , unexpectedly, and unpredictably outperformed the material compressed according to the test procedure of WO '625.

As discussed below, the above comparative data also show that the pressed materials of WO '625 do not inherently possess properties that render the present claims obvious, as contended by the examiner.

The comparative examples of the present specification further show the importance of compression at no less than 60°C. Comparative Examples 2, 3, 5, and 6 of the specification were pressed at 50°C, i.e., the same temperature as WO '625. These examples show that pressing at a high pressure, but low temperature, "does not result in significant improvement" (specification, page 15, lines 12-13, for example). These comparative examples are as close or closer to the claimed invention than the WO '625 disclosure, and further show the unexpected and unpredictable results achieved by the present invention.

The examiner has questioned the unexpected results demonstrated by the present invention and the basis of these unexpected results. With respect to present claim 1, which incorporates the features of original claim 12, the examiner's following contentions cannot be maintained:

> "As to claims [sic] 12, Whitmore does not teach dimensional stability, however WO '625 teaches that "certain web materials are subjected to compression at one or more times during the construction" and further teaches that "after the web material has been compressed, there is tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web. However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112-2112.02"

The MPEP sets forth the requirements to support an assertion of inherency. For example, the MPEP states:

> "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not *necessarily* possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433." (MPEP §2112.01, emphasis in original); and
>
> "'In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)...
>
> The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency." (MPEP §2112)

It is submitted that the examiner has not met the initial burden required to support that the claimed material is identical or substantially identical to the material prepared in WO '625. The present claims recite a material that exhibits substantially

improved absorption results and dimensional stability compared to the compressed material of WO '625.

An SAP-containing web of WO '625 does *not* inherently possess the properties exhibited by the present invention, as demonstrated by the unexpected dimensional stability and improved absorption properties set forth in the specification and above. Furthermore, WO '625 does *not* disclose all limitations of the claims because the reference lacks a teaching of the claimed temperature *and* pressure. The '165 patent also fails to teach dimensional stability, and nevertheless is directed to an entirely different type of web material.

Based on these substantial differences, the examiner has failed "to provide objective evidence or cogent technical reasoning" to support an assertion that the present claims necessarily flows from the teaching of WO '625, alone or in combination with the '165 patent.

In prior Office Actions, the examiner provided reasoning to support the rejection of various dependent claims. Appellants wish to address, and point out errors, in this reasoning.

With respect to the examiner's comments regarding claims 13-16, the examiner merely refers to webs disclosed in WO '625 that are untreated and treated. The "treated" webs referred to by the examiner are Examples 7-10 of WO '625. Appellants fail to see where the "treated" webs are equated to "pressed and heated". Rather, "treated" means having a polymer added to fiber by *in situ* polymerization (i.e., see WO '625, table, page 34, untreated has "0" weight of polymer). All treated webs have a specified amount of SAP applied thereto. Both treated and untreated webs of WO '625 were tested for FSEV and EVUL as set forth in WO '625 at page 31, lines 33 through page 32, line 4. Therefore, WO '625 is comparing fibers *free* of SAP (untreated) to fibers having SAP (treated). The examiner is incorrect in the comparison described in the Office Action.

Furthermore, the present specification compares a presently claimed SAP-containing web to webs of WO '625 having SAP applied thereto. Applicants have shown

unexpected results achieved by an increased temperature and modified pressure over WO '625 (see specification, page 9, line 4 through page 10, line 16).

With respect to claim 9, WO '625 may arguably disclose a web density of 0.005 to about 0.12 gm/cm, but claim 9 recites a density of "not less than 0.5 g/ccm to 1.2 g/ccm. The claimed density therefore is from 4 to 240 *times* more dense than the web of WO '625. The cited references therefore fail to recite every feature of the claimed invention, and a case of *prima facie* obviousness cannot be maintained. See Section VIII.B., above.

The examiner also states in the Office Action:

> "However, this relaxation phenomenon is much less pronounced in articles prepared in accordance with the present invention which tend to remain stably in a compact state until subjected to an insult of fluid" (page 26, lines 31-41). In the following paragraph, WO'625, states that each of these factors are easily controlled and maybe optimized to achieve the desired performance (page 27, lines 19-22). With respect to Applicant's arguments, the rationale to modify the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law."

However, at page 26, line 31-41, WO '625 teaches that even compressed webs have a "tendency for the fibers to relax, and expand somewhat thereby increasing the thickness of the web" (see lines 36-38). Although WO '625 reduces the relaxing phenomenon, the reference to fails to teach a reduction in the amount of relaxation as presently claimed (and as set forth in the specification and evidenced with objective, comparative data), and very importantly fails to teach or suggest *how* to overcome this tendency of fiber relaxing. Further, with respect to page 27, lines 19-22, WO '625 is not referring to compression as a factor that can be optimized but to the "swelling of the absorbent gelling particles" (page 17, line 14). The factors referred to are those that effect strikethrough and rewet, i.e., SAP concentration, degree of crosslinking, uniformity of SAP distribution, particle size distribution, and particle hydrophobicity (WO '625, page 27, lines 13-23). Such factors are not related to and are independent of the pressure and temperature utilized to manufacture the SAP-containing web.

The examiner has contended that it is not clear that the Comparative Examples were made by the process of WO '625. To the contrary, the specification is replete with references to the Comparative Examples being made by the process of WO '625. WO '625 teaches a specific compression at page 31, lines 33-43, wherein applying 5.5 bar pressure at 50°C for 48 seconds compressed an SAP-containing web from 4.5 to "approximately 0.67 mm". This clearly shows that, in the above tests, applicants utilized the pressing conditions utilized by WO '625 at page 31, lines 33-43. The process disclosed in WO '625 is a standard pressing step used in a standard test. Accordingly, the pressure/temperature conditions of WO '625 are *not* varied, and are disclosed in WO '625 and the present specification. For example, see specification, page 2, lines 3-13; page 7, lines 11-22; page 8, line 33 through page 9, line 2; and page 9, lines 4-17 (note "insignificant, if at all" expansion for a presently claimed web). Importantly, note page 9, lines 31-34 and page 7, lines 17-18 of the specification *defining* a comparative web made in accordance with WO '625. Also see page 14, lines 36 and 37; page 15, line 15 and 16; page 18, lines 32 and 33; and page 19, lines 11.

The present specification therefore clearly describes the preparation of comparative webs that were tested, and clearly demonstrates the unexpected results achieved over those comparative webs, i.e., comparative SAP-containing webs prepared at 50°C, 5.5 bar, and 48 seconds.

The examiner's statements regarding time as a factor in the present invention are incorrect. Time is not a factor. The FSEV and EVUL data referred to by the examiner show the amount of liquid *absorbed over time*. The time (48 seconds) is merely to standardize the test for comparative purposes. The time in the tables at page 10 of the specification do not correlate to the time the web is subjected to the claimed temperature and pressure.

With further respect to the time variable the present webs are used, for example, in incontinence products and diapers. Initially, the article has to be as thin as possible for discreetness, and also remain as thin as possible even if stored for long times prior to use. Upon use, typically in an adult incontinence product, the article needs to absorb as much urine as possible, but not necessarily in zero time or immediately. Even if an inventive web does not absorb urine faster than a web of WO '625 at some initial or

intermediate period of use, the inventive webs are still thinner and absorb more urine over time. In short, the time disclosed in the tables of page 10 of the specification simply is not a process variable.

Accordingly, in view of the data provided in the specification, it is submitted that an SAP-containing web, prepared as claimed, possesses nonobvious differences over the web disclosed in WO '625. In addition to the nonobvious differences between the presently claimed absorbent materials and WO '625 that are fully and clearly set forth in the specification, *by objective data*, WO '625 provides no apparent reason for a person skilled in the art to press at a temperature of not less than 60°C. WO '625, alone or taken with the '165 patent, provides no hint or suggestion, let alone any incentive, for a person skilled in the art to consider increasing the claimed pressing temperature with any reasonable expectation of providing the unexpectedly improved results demonstrated by the presently claimed absorbent webs.

WO '625 utilizes a pressing temperature of 50°C in conformance with a standard test in the art that provides guidance on how a superabsorbent material will behave in a diaper after an infant has sat in a wetted diaper, then stood up. WO '625 therefore has not remotely addressed or considered whether a change in pressing temperature and pressure would have an effect on absorption properties. The '165 patent is directed to an entirely different type of web and wherein temperature and pressure are needed during web formation to bond and entangle SAP particles and into the fiber. This is not necessary in the present invention because an *in situ* polymerization bonds the SAP to the fibers and entanglement is not required. Further, the '165 patent *discourages* an increase in pressing temperature because the '165 patent teaches that the *cooler* surface of the absorbent article is the *denser* surface.

It is submitted that the examiner has failed to establish a *prima facie* case of obviousness of the present claims over the cited references because (a) there is no apparent reason to combine the elements in a fashion claimed (WO '625 discloses a single temperature and the '165 patent teaches that a cooler region provides a more dense web); (b) the modification did not have a reasonable expectation of success (the '165 patent discourages an increased temperature when a dense web is desired); and (c) the references do not teach all

the claimed limitations (the references alone or in combination fail to teach the claimed temperature *and* pressure *and* dimensional stability). In addition, the present invention has demonstrated unpredictable and unexpected results. Therefore, the rational supporting present rejection cannot be used (see pages 18 and 19 above).

Furthermore, the examiner has failed to consider appellants' evidence rebutting a *prima facie* case of obviousness. The examiner relies upon the webs of WO '625 inherently possessing the properties of a claimed web. This examiner's inherency argument has been addressed above, and it fails because of the unexpected and unpredictable improvements provided by the claimed materials. Although these differences were pointed out in a previous response, they were overlooked and not considered. Irregardless, if the examiner considers the data in the specification as insufficient, it is *incumbent* in the examiner to specifically set forth facts and reasoning supporting that determination. (MPEP §2145). The examiner has failed to provide such facts and reasoning.

For all the reasons set forth above, appellants submit that claims 1-5, 9-11, 13-18 and 22-24 are patentable over a combination of WO '625 and the '165 patent under 35 U.S.C. §103, and that the rejection should be reversed.

4. Rejection of Claims 6 and 8 as Being Obvious over WO '625 in View of the '165 Patent

Claims 6 and 8 also stand rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3. Claim 6 recites the material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water. Claim 8 recites the material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water. WO '625 and the '165 patent, each alone or in combination, fail to teach or suggest the features recited in claims 6 and 8.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 1. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials further render claims 6 and 8 nonobvious over a combination of WO '625 and the '165 patent. The

combination of references also fail to teach every claimed feature of claims 6 and 8 as required to establish a *prima facie* case of obviousness.

With respect to the directional expansion values recited in claims 6 and 8, attention is particularly directed to the specification at page 12, lines 7-9, stating in reference to the claimed absorbent materials:

> "The 30x50 mm samples were observed to swell essentially in the z-direction. A swelling of about 10% was measured in the x- or y-direction, the third dimension remained unchanged (the web is more easily extendable in one axis than in the other dimension)."

Also see the data at page 8, lines 4 and 13, and in the Expansion Factors at pages 12-19, of the specification, wherein the inventive absorbent materials show a substantial expansion factor of 11.2 to 32.5 in the z-direction (Examples 1-11) and Comparative Examples 2, 3, 5, and 6 prepared very similarly to the pressed web WO '625 did *not* expand in the z direction, i.e., expansion factor of 1.1 to 4.6[1]. The SAP-containing webs of WO '625 therefore do not inherently exhibit the features recited in the claims. To the contrary, SAP-containing webs of claims 6 and 8 demonstrate unexpected and unpredictable benefits over the pressed webs of WO '625.

In addition, the references, each alone or in combination, fail to teach or suggest all of the claimed features of claims 6 or 8, and accordingly a case of *prima facie* obviousness cannot be established. See Section VIII.B., above.

Appellants therefore submit that claims 6 and 8 are patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

5. Rejection of Claim 7 as Being Obvious over WO '625 in View of the '165 Patent

Claim 7 also stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the same reasons set forth above in Section VIII.C.3.

[1] WO '625 discloses pressing 50°C and 5.5 bar. Comparative Examples 2, 3, 5, and 6 were pressed at 50°C and either 6 bar or 80 bar. These comparative examples are closer to the claimed invention than WO '625 because of a higher pressing pressure.

Claim 7 recites "[A] material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water." Claim 7 neither recites nor relies upon process parameters, such as pressing temperature and pressure. Therefore, the process parameters recited in WO '625, i.e., 50°C and 5.5 bar, and in the '165 patent, are not relevant.

As set forth in Section VIII.C.3., above, an absorbent material of WO '625 does not inherently possess the features of the materials recited in claim 7. Furthermore, the unexpected and unpredictable results provided by the presently-claimed materials render claim 7 nonobvious over a combination of WO '625 and the '165 patent. The combination of references also fail to teach every claimed feature of claim 7, as required to establish a *prima facie* case of obviousness. See Section VIII.B., above.

Appellants therefore submit that claim 7 is patentable 35 U.S.C. §103 over a combination of WO '625 and the '165 patent under 35 U.S.C. §103 for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

6. Rejection of Claim 21 as Being Obvious over WO '625 in View of the '165 Patent

Claim 21 stands rejected under 35 U.S.C. §103 as being obvious over WO '625 in view of the '165 patent for the reasons set forth above in Section VIII.C.3. Claim 21 recites a "process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar."

Process claim 21 recites a particular temperature and pressure that differ from the pressing temperature and pressure disclosed in WO '625. As set forth in Section VIII.C.3., above, an absorbent material made by the process of WO '625 does not inherently possess the features of a compressed material made by the method recited in claim 21. Furthermore, the unexpected and unpredictable results provided by a material made in accordance with process claim 21 render claim 21 nonobvious over a combination of WO '625 and the '165 patent.

With further respect to claim 21, the examiner has stated that WO '625 teaches "50°C which is about 60°C" and 5.5 bar "which can be about 3 bar". This statement lacks support. While the term "about" avoids a strict numerical interpretation, the term cannot be interpreted as broadly as suggested by the examiner.

The term "about" should be interpreted in context, in particular with reference to the intrinsic evidence for the context in which it is used. *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995). When the intrinsic evidence points to the criticality of a particular parameter, the term "about" is interpreted narrowly. *See Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.* 476 F.3d 1321, 1328-1329 (Fed. Cir. 2007) (narrowly construing an "about 1:5" claim limitation in view of intrinsic evidence). A claim range is critical, for example, when the specification indicates that it is important to select a value in the particular range and further indicates that such a selection is related to achieving the objects of the invention. *See Conopco, Inc., v. May Dept. Stores Co.,* 46 F.3d 1556, 1561 (Fed. Cir. 1994) (finding a composition's ratio of isoparaffin to alkyl phosphate salt critical). The presence of other disclosed ranges guides a narrow interpretation of the term "about," in particular interpretation should not render the distinction between the other disclosed ranges meaningless. *See Ortho*, 476 F.3d at 1327 (narrowly construing an "about 1:5" claim limitation "because to find otherwise would allow the scope of the more specifically identified ratio, 1:5, to encompass a range of ratios that could potentially render meaningless another claim's limitation").

Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 1217-18 (Fed. Cir. 1991) affirmed that the use of the word "about" in a claim is appropriate where the claim contains a range of components with no absolute boundaries and that the use of the word "about" in a claim is only limited to the extent that prior art exists, that is, prior art which would limit broad interpretation of the claim. The Patent Office, in MPEP §2173.05 (b), further characterizes the *Amgen* case as follows:

> "However, the court held that claims reciting "at least about" were invalid for indefiniteness where there was close prior art and there was *nothing in the specification, prosecution history, or the prior art* to provide any indication as to what range of specific activity is covered by the term "about." *Amgen, Inc. v. Chugai Pharmaceutical Co.,* 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991)." (Emphasis added)

It also must be kept in mind that WO '625 discloses *only one* temperature (50°C) and *only one* pressure (5.5 bar). In addition, *Comparative* Examples 2, 3, 5, and 6 of the present specification press at 50°C and greater than 3 bar, thereby clearly showing that 50°C is *not* encompassed by "about 60°C".

In view of the fact that WO '625 solely teaches 50°C, and in view of the present disclosure, wherein 50°C is a comparative temperature, it cannot be contended with any degree of reason that a claimed temperature of about 60°C can be extended to include a temperature of 50°C. The broad interpretation of "about" suggested by the examiner renders the disclosed temperature meaningless because to include 50°C makes the temperature range significantly wider than the about 60°C temperature disclosed in the specification. Thus, the suggestion that "about 60°C" encompasses 50°C is erroneous.

Nowhere in the WO '625 disclosure is it taught or suggested that the temperature can be increased by 20%, or the pressure reduced by close to 50%. WO '625 provides a single temperature and pressure, neither one of which can be changed because then the test based on this temperature and pressure would be worthless. The references provide no incentive or apparent reason for a person skilled in the art to raise the temperature to "about 60°C" (or higher) *and* utilize a pressure of "about 3 bar" (or greater), which is a higher temperature and lower pressure disclosed in to WO '625. In particular, if WO '625 teaches a high pressure improves performance, why *decrease* the pressure disclosed in WO '625.

The '165 patent fails to cure the deficiencies of WO '625. The '165 patent utilizes pressing conditions to form an entirely different type of web, and specifically discloses that *increasing* pressing temperature *decreases* density. Persons skilled in the art therefore would not consider pressing at an increased temperature because a less dense absorbent material, which the art wishes to avoid, would be expected.

Appellants therefore submit that claim 21 is patentable under 35 U.S.C. §103 over a combination of WO '625 and the '165 patent for the reasons set forth above and in Section VIII.C.3., and that the rejection should be reversed.

7. Response to Examiner's Answers to Applicant's Arguments

At pages 3-5 of the Final Office Action of May 28, 2008, the examiner responds to arguments made in Amendment "A", filed February 20, 2008. Appellants now address the examiner's answers.

> (a) "The fact that the WO '625 discloses a pressing pressure and temperature for testing the web indicates an understanding that the pressure and temperature of compression can affect an absorbent web with a superabsorbent polymer."

The examiner misstates the reason why an *already prepared* web is pressed at 50°C and 5.5 bar. The webs are pressed in the test set forth in WO '625 to simulate a wetted diaper on a seated child after the child stands. The test demonstrates how the web is expected to react under actual conditions of use. The test in no way "indicates an understanding that the pressure and temperature of compression can affect a superabsorbent web." All webs are tested by the same protocol in order to obtain meaningful data for a comparison between different webs. The examiner's basis for the above contention is simply erroneous.

> (b) "Whereas WO'625 has the structure and materials of the claimed invention it would be reasonable to presume that WO'625 inherently has the properties of WO'625."

Although it may be reasonable to presume that the claimed absorbent material made by the claimed method inherently has the properties of an absorbent material of WO '625 (which appellants believe the examiner is attempting to state), appellants have shown with *objective data* that a claimed absorbent web has different and improved properties over a web that is pressed and heated as set forth in the procedure of WO '625. These unexpected improvements are fully set forth in Section VIII.C.3. above. A web of WO '625 therefore does not inherently have the properties of a presently claimed material.

> (c) "However as the claims are also drawn to the process of making a material formed of a superabsorbent polymer and fibers, Aberson provides a finding that is known in the art to optimize the pressure and temperature of a heating and compression process."

First, the '165 patent is directed to an entirely different type of absorbent web. The '165 patent applies heat and pressure to bond and entangle superabsorbent polymer

particles with fibers during manufacture of the web. In contrast, the present claims are directed to an absorbent web wherein monomers are polymerized in the presence of the fibers to form a superabsorbent polymer bound to the fiber. The present invention does not rely upon entanglement and heat induced bonding. In accordance with present invention, heat and pressure are not required for bonding and/or entanglement, and are optional during initial preparation of the web. A present material is heated and pressed after the *in situ* polymerization to compress the material. Accordingly, the structure of the '165 patent web and the present absorbent material are entirely different. The '165 patent discloses preferred temperatures and pressures for forming an entangled-type web. Such a temperature and pressure cannot *a priori* be considered optimum for a type of absorbent material recited in the present claims.

More importantly, the '165 patent teaches pressing using a differential temperature such that the coolest region of the pressed web is the most dense. If two plates are used, the most dense zone of the web is the center which is the coolest zone of the web. See '165 patent, Figs. 3-5, wherein zone 20 is the coolest *and* most dense zone. This is contrary to the present invention which requires elevated heat and pressure to provide a dense web. The '165 patent therefore discourages a person skilled in the art to alter the test conditions of WO '625 and increase the pressing temperature.

> (d) "Therefore Aberson and WO'165 [sic] have the same structure, produced of the same materials and produced by the same process."

As discussed above in (c), the absorbent materials of the '165 patent and WO '625 do *not* have the same structure and are *not* produced by the same process. The '165 patent absorbent web is a bonded/entanglement type web, wherein the fibers and superabsorbent polymer are mixed, and pressed and heated. In the present process and WO '625, the superabsorbent polymer is prepared *in situ* in the presence of the fibers, then pressed and heated. Accordingly, the articles of the '165 patent and WO '625 are different and are prepared by different processes.

D. REJECTION OF CLAIMS 22-24 UNDER 35 U.S.C. §103 AS BEING OBVIOUS OVER WO '625 IN VIEW OF THE '165 PATENT AND SOERENS ET AL. U.S. PATENT NO. 7,115,321 ('321)

Method claims 22-24 also stand rejected under 35 U.S.C. §103 for the reasons set forth above in Section VIII.C. with respect to WO '625 and the '165 patent and because the '321 patent teaches the absorption of water vapor by an absorbent material.

First, the examiner summarily maintained a rejection of claims 22-24 because "the claims have not been amended and therefore the previous Office Action Rejection of 5/17/2007 is maintained" (Office Action, October 19, 2007, page 6). The examiner failed to consider the amendment to claim 1, filed August 17, 2007. Because claims 22-24 depend from claim 1, these claims were amended and the amended claims were not considered by the examiner.

Second, claims 23 and 24 are not directed to absorbing water vapor, but to absorbing an aqueous fluid.

Third, the '321 patent is directed to an absorbent binder system that is applied to a substrate, and the system crosslinks on the substrate to form a laminate. The '321 patent is not remotely directed to an absorbent material comprising fibers and a superabsorbent polymer.

Fourth, the patentability of claim 1, from which claims 22-24 depend, over a combination of WO '625 and the '165 patent has been fully addressed above. The '321 patent fails to overcome the deficiencies of WO '625 and the '165 patent. As stated above, the '321 patent is directed to an absorbent binding coating and fails to teach or suggest that a compressed material prepared according to claim 1 can be used as the absorbent binding coating. See the Example of the '321 patent at columns 16 and 17. The '321 patent also does not address the dimensional stability overcome by the presently claimed absorbent material.

It is submitted that, in view of the novelty and nonobviousness of the absorbent material of claim 1, uses of the novel and nonobvious material also are novel and nonobvious. Appellants therefore submit that the rejection of claims 22-24 under 35 U.S.C. §103 over a combination of WO '625, the '165 patent, and the '321 patent should be reversed.

IX. CONCLUSION

In view of the foregoing remarks, appellants respectfully request that the Board reverse the final rejection of claims 1-11, 13-18, and 21-24, and that all pending claims should be allowed.

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Respectfully submitted,

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CLAIMS APPENDIX

Claims on Appeal in Application Serial No. 10/532,279

1. (Previously presented) A material formed from a superabsorbent polymer and fibers obtained by *in situ* polymerization of the superabsorbent polymer and by pressing at not less than 60°C and not less than 3 bar, wherein an increase in thickness 60 days after compression is less than 100% based on the thickness directly after compression.

2. (Previously presented) The material of claim 1 obtainable by pressing at not less than 70°C.

3. (Previously presented) The material of claim 1 obtainable by pressing at not less than 80°C.

4. (Previously presented) The material of claim 1 obtainable by pressing at not less than 5 bar.

5. (Previously presented) The material of claim 1 obtainable by pressing at not less than 10 bar.

6. (Previously presented) The material of claim 1 that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

7. (Previously presented) A material formed from a superabsorbent polymer and fibers that expands not less than 5-fold in one dimension and by less than 20% in the other two dimensions on addition of water.

8. (Previously presented) The material of claim 1 that expands not less than 10-fold in one dimension and by less than 10% in the other two dimensions on addition of water.

9. (Previously presented) The material of claim 1 that has a density in the range from not less than 0.5 g/ccm to 1.2 g/ccm.

10. (Previously presented) The material of claim 1 wherein a ratio of teabag to retention in 0.9% NaCl solution is greater than 2.

11. (Previously presented) The material of claim 1 wherein retention in 0.9% NaCl solution is greater than 3 g/ccm.

12. (Cancelled)

13. (Previously presented) The material of claim 1 wherein an FSEV after 60 seconds is at least double that of an uncompressed material.

14. (Previously presented) The material of claim 1 wherein an FSEV after 2 minutes is at least 60% higher than that of an uncompressed material.

15. (Previously presented) The material of claim 1 wherein an EVUL after 60 seconds is at least double that of an uncompressed material.

16. (Previously presented) The material of claim 1 wherein an EVUL after 2 minutes is at least 60% higher than that of an uncompressed material.

17. (Previously presented) The material of claim 1 wherein an AAP (0.7 psi) in 0.9% NaCl solution is greater than 5 g/ccm.

18. (Previously presented) A laminate comprising a material of claim 1.

19. (Canceled)

20. (Canceled)

21. (Previously presented) A process for producing a compressed material comprising a superabsorbent polymer, obtainable by *in situ* polymerization of the superabsorbent polymer, and fiber by pressing at about 60°C and about 3 bar.

22. (Previously presented) A method of absorbing water vapor comprising contacting the water vapor with a material of claim 1.

23. (Previously presented) A method of absorbing an aqueous fluid comprising contacting the aqueous fluid with a material of claim 1.

24. (Previously presented) The method of claim 23 wherein the aqueous fluid comprises a body fluid.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.